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JOURNAL
OF THE
ASIATIC SOCIETY OF BENGAL,

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Nos. I. to VI.—1857.

“It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die away, if they shall entirely cease.”
—SIR WM. JONES.

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CONTENTS.

	<i>Page</i>
Bahing tribe, Vocabulary of,	
Buddhist Remains (ancient) at Pagán on the Irawadi, account of,	1
Darjiling, Sikkim Himalayah, Mean Temperature and fall of rain at, 1848 to 1855,	63
Derájat-Lower, Account of the mountain district commonly called <i>Roh</i> , forming the western boundary of the—with notices of the tribes inhabiting it,	177
Entomological Papers,	132
Jámerá Pat in Sirgooja, Notes on, Part I.	226
Kiranti dialects—Comparative Vocabulary of,	350
Kokan, Kashgar, Yarkund and other places in Central Asia, Notes on,	257
Lagomys (new) and a new <i>Mustela</i> inhabiting the north region of Sikim and the proximate parts of Tibet,	207
Lycium, Indian species of, Notes on the,	52
Magnetic Survey, Report on the progress of, and of the Researches connected with it, from November, 1855, to April, 1856,	54, 97
————— Report on the Proceedings of the Officers engaged in the,	207
Meteorological Observations (Abstracts of) taken at the Surveyor General's Office, Calcutta, in the months of October, November and December, 1856,	i.
————— in the month of January, 1857,	i.
————— in the month of February, 1857,	ix.
————— in the months of March, April, May, and June, 1857,	xvii.
————— in the month of July 1857,	xlix.
————— in the months of August, September, October, November and December,	lvii.

	<i>Page</i>
Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the months of September, October, November and December, 1856, ...	xxii.
Nanga Parbat and other Snowy mountains of the Himalaya Range adjacent to Kashmir, Memo. on, ...	266
Nepal, Comparative Vocabulary of the broken tribes of, ...	317
Pagán, Account of Buddhist remains in, ...	1
Pigeon (Indian) akin to the Stock-Dove of Europe, description of, with notices of other Columbinæ, ...	217
Proceedings of the Asiatic Society of Beugal for January and February 1857, ...	65
————— for March and April, 1857, ...	154
————— for May, 1857, ...	227
————— for June, July, August, September and October, 1857, ...	275
Shells (of India) Land and Freshwater. Notes on the distribution of the Part I. ...	245
Vayu tribe, Vocabulary of, ...	372
————— Grammar of, ...	429
Vocabulary (Comparative) of the languages of the broken tribes of Nepal, ...	317
————— of the several dialects of the Kiranti language, ...	350
————— and Grammar of Vayu Tribe, ...	372, 429
————— of Bahing Tribe, ...	...

INDEX TO NAMES OF CONTRIBUTORS.

Anderson, T. Esq., M. D. Oude Contingent. Notes on the Indian Species of Lycium, ...	52
Blyth, Edward, Esq. Description of a new Indian Pigeon, akin to the 'Stock-Dove' of Europe; with Notices of other Columbinæ, ...	217

	<i>Page</i>
Hodgson, B. H. Esq., B. C. S. On a new <i>Lagomys</i> and a new <i>Mustela</i> , inhabiting the north region of Sikim and the proximate parts of Tibet,	267
————— Comparative Vocabulary of the Broken Tribes of Nepal,	317
————— of the several dialects of the Kiranti language, ...	350
————— Vocabulary of the Vayu Tribe,	372
————— Grammar of the Vayu Tribe,	429
————— Vocabulary of the Bahing Tribe, ... ..	...
Leigh, Capt. R. T. Notes on Jamera Pát in Sirgooja, ..	226
Montgomerie, T. G., Lt. Engineers, Memorandum on the Nanga Parbat and other Snowy Mountains of the Himalaya Range adjacent to Kashmir,	266
Nietner, John, Esq. Entomological Papers,	132
Raverty, H. G., Lieut. An account of the Mountain district forming the western boundary of the Lower Deraját, commonly called <i>Roh</i> , with notices of the tribes inhabiting it,...	177
————— Notes on Kokan, Kashgár, Yarkand, and other places in Central Asia,	257
Schlagintweit, Adolphe and Robert, Esqrs. Report on the Progress of the Magnetic Survey and of the Researches connected with it; from November, 1855, to April, 1856,...	54, 97
————— Report on the Proceedings of the Officers engaged in the Magnetic Survey of India,	208
Theobald, W. Junr. Notes on the distribution of some of the land and freshwater shells of India, Part I.	245
Yule, Capt. Henry. An account of the Ancient Buddhist Remains at Pagán on the Irrawadi,	1
Withecumbe, J. R., M. D. Mean temperature and fall of rain at Darjiling, Sikkim Himalayah,—1848 to 1855, ...	63

The Meteorological Observations from July to December, 1857, pp. xlix.—xvi., are to be taken from Nos. 1 and 2 of 1858, and included in the volume of 1857.

JOURNAL
OF THE
ASIATIC SOCIETY.

No. III. 1857.

An Account of the mountain district forming the western boundary of the Lower Deráját, commonly called ROH, with notices of the tribes inhabiting it.—By Lieut. H. G. RAVERTY, 3rd Regiment Bombay N. I. Assistant Commissioner, Multán.

To any one who may ever have been stationed in the Deráját, as the important tract of level country extending from some miles north of Derá Ismáíl Khán, to the frontier of Upper Sindh, and lying between the Indus, "The Father of Rivers," and the lofty mountains to the west, the name of ROH, will be as familiar as a "Household Word." It may not, however, be so well known to others who have never had occasion to serve so far west; and as the extent and general meaning of the term Roh is not well defined at present and but little known, I will endeavour to throw some light on the matter, from enquiries instituted with this view, and from my own information on the subject, together with what I have gathered from a few Belúch Chieftains with whom I became acquainted during my residence in the Deráját.*

An Afghán author describes Roh as, "The name of an Afghán country of which the eastern (N. E.) boundary extends to Kashmír, and the western (S. W.) as far as the river Ílmand (Helmand) near Herát, between which two countries is a distance of two and a half

* See my account of a visit to the Shrine of Sakhí-Sarwar in the Lower Deráját, with a notice of the Melá or annual fair held there. *Journal of Bengal Asiatic Society*, September, 1855.

months' journey. The northern boundary of it is Káshkár,* and the Southern Belúchistán. It therefore lies between Irán, Túrán,† and Hind; and the inhabitants of it are called Rohilahs."

So writes Mahabat Khán; but with regard to the east and west he appears to have confounded the south-west and north-east; and with respect to the river Iílmánd, or Helmand as it is erroneously called, he is wholly in error. The Iílmánd rises in the mountain of Koh-i-Bába, some twenty or thirty miles west of Kábul, and from thence takes a south-westerly course, flowing about seventy miles west of Ghuzní to Ghiriskh in Long. 64° 20,' and eighty or a hundred miles to the west of Kandahár, from which taking a sweep almost due west through Siestán, empties itself into the Zarrah lake some five degrees south of Hirát.

With this exception, and what he calls the northern boundary, the description will almost agree, both as regards extent and position, with the Arachosia of the Greeks and other classical authors, which was the most eastern satrapy of Persian India, and would have comprised within it the whole of the country now known as Afghánistán, and a large portion of Belúchistán also. Professor Heeren in his work on the "Asiatic Nations," remarks, that "The western and northern boundaries of India were not then the same as at present. To the west, it was not then bounded by the river Indus, but by a chain of mountains, which under the name of Koh (whence the Grecian appellation of Indian Caucasus) extended from Bactriána to Makrán, or Gedrosia, enclosing the kingdoms of Kandahár and Kábul, the modern kingdom of Eastern Persia or Afghánistán." I am, for the above reasons, inclined to consider, that from the word Koh, which in Persian signifies a mountain, the name Roh is derived.

Some of the Afghán writers, who have described so graphically and so well, the events which happened in India and Afghánistán under the sway of the Moghals and the Afgháns or Patáus, always

* Káshkár or Chitrál is a country of Hindú Khúsh to the east of the Síáh Posh Káfirs, west of Panjkorah and north of Bájour, known as the country of Sháh Kutor.

† Turán—The ancient dominion of Afrásiáb to the north and east of the river Oxus.

call the mountainous tract of table-land lying between Kandahár, Ghuzní, and Kábul on the west, and the Súlímán mountains on the east; and from the range of Spíu Ghar or Sufáid Koh on the north, to the frontier of Upper Sindh (as at present constituted,) to the south, by the name of Roh; and its inhabitants, not including the Belúch tribes inhabiting the southern portion, were hence known as Rohilahs. The whole of the Afghán tribes on this account have often been, and are still sometimes called, even by themselves, but erroneously so, by this name.

The present rough sketch, however, chiefly refers to that tract of country which lies between the highest peak of the Súlímán range, called the Takht or throne of Súlímán (around which the Afgháns first settled on their immigration from the west) and the frontier of Upper Sindh; and embracing within its limits the offshoots from the Súlímán range, as far as the districts of Derah Ismááíl Khán, and Derá Ghází Khán, and the eastern portion of Síwístáu west, which, as I have already remarked, is for the most part, particularly the southern half of it, peopled by Belúchís who have given, and may still give, great annoyance to the authorities. In fact, it has ever been their bugbear, as being the Alsatia of the Deráját and the western districts of the Panjáb.

To watch the passes leading out of these fastnesses, a line of Military posts, consisting of both Infantry and Cavalry, with Artillery here and there, have been established, and which are furnished from the Punjab Irregular Force exclusively; but although the different patrols are constantly on the move from one station to another, yet these fierce mountaineers, the Gael of the Panjáb, manage to pass the line of posts, which, to be effective, are too far apart, and often succeed in carrying off the cattle and flocks of their more peaceful brethren of the plain, as well as those of the Jatás and Hindús, who, possessing the best lauds in the district, have more to attract the freebooters. These raids are constantly attended with blood-shed and loss of life on both sides.

Before proceeding to describe this mountainous country, it will perhaps be better to give a short sketch of the principal features of the Deráját, and more particularly of the Derá Ghází Khán district, with which I am best acquainted from having been once locat-

ed there, and which also in a measure may be said to be more closely connected with Roh and its people than the sister Derá which may be considered almost a portion of Afghánistán itself, Bunú and Murwat being included in it.

The district or zillah of Derá Ghází Khán is about a hundred and ninety miles in length with an average breadth of about thirty. It is bounded east by the Indus and west by Roh. The land is quite level and bespeaks its origin, which appears to have been formed by two separate and distinct operations—the subsidence, or rather deposit, of mud brought down by the river on one side, and earthy matter combined with small pebbly stones washed from the hills on the other, mixed here and there with patches of sand or triturated sand-stone.

Thus there are two different descriptions of soil brought from two different ranges, that from the Indus consisting of rich mud levigated very fine from the distance it has been brought, and capable of producing the more valuable crops, such as indigo, cotton, sugarcane, etc; whilst the other having come but a short distance is precisely similar in composition to the parent hills, and consists of a succession of layers of sand and clay of a coarse grain, the former predominating. In some places, this *debris* has become so hard that it might easily be mistaken for stone. The produce from this soil consists almost entirely of Bájrá (*Holcus spicatus*), and Juwár (*Holcus Sorgum*), two hardy species of grain that will grow in almost any description of land.

The same causes of detrusion being in constant operation, these two soils are supplied with water from the same sources as they themselves proceed, the rich deposit of the Indus being well irrigated by means of canals from April to October, during which months this river may almost be called a sea, and from a few Persian wheels. The poorer soil is dependent on, and scantily supplied by the small hill streams of which there are numbers, but only after falls of rain which are uncertain; on all other occasions they are with few exceptions, quite dry. The Sanghar pergunnah, the most northern division is, however, more bountifully supplied than the other parts of the district, having a small river of its own, which coming from a greater distance, taking its rise on the eastern slope

of the Súlímán range, has a greater volume of water, and flows for the greater part of the year. Still the irrigation depends in a great measure on rain also, and therefore the produce is variable and its extent uncertain; the revenue sometimes having reached as high as 94, or 95,000 rupees, and even more under the Seikh Government, whilst in some years again it has barely amounted to 50 or 55,000 rupees.

The soil not within the influence of these mountain streams is perfectly barren; thus from the village of Rájunpúr, as far south as Ráján—a distance of upwards of forty miles—the cultivated portion is entirely separated from the mountains by a narrow, bare, and sandy belt of land, in some places from twenty to twenty-five miles in breadth. This soil approaches the Indus more closely in the vicinity of Derá Ismáæil Khán, and also near Shah-Wálí, some fifteen or twenty miles south of Ráján, near the boundary of Upper Sindh.

The water from the few wells within ten or fifteen miles of the hills is invariably bad, generally of a black colour, fœtid smell, and brackish taste, and as might be imagined, exceedingly unwholesome. The villages in this direction are mainly supplied with this element from tanks or ponds, which the people construct to contain the water flowing from the hills; and sometimes during the hot season, after great drought, the inhabitants are absolutely obliged to desert their hamlets. This is particularly the case near Dájál, close to the mountains, the people of which proceed to Jámpúr—a small town nearer to the Indus, where they remain until water becomes more plentiful.

The rich alluvial soil of the Indus on the other hand produces very luxuriant jungle, and the cultivation, commencing from the distance of about two miles inland, generally extends parallel to the river's bank for about eight or nine miles in breadth, which is irrigated from several canals. During the inundation of the river from April to October, these two miles of land above referred to are entirely flooded to a greater or less extent, and therefore but partially brought under cultivation during the remaining portion of the year; but it is invaluable as grazing land, and the Government do not fail to collect a tax termed Tríní, from the people who graze their cattle on it. Large quantities of grass too are collected and stored for fodder.

Some villages are remarkable for their date trees, which grow most luxuriantly, particularly in the vicinity of Derá Ghází Khán, and which used to yield a revenue alone of 8 or 9,000 rupees yearly to the Seikh Government.

The most fruitful portions of the land in the district are in the hands of Hindús and Punjábí Musalmáns, whilst the poorer allotments are held by the simple and more hardy Belúchís.

Some of the canals which I have already referred to, and of which there are several in the district, are yearly cleared out by the landholders themselves, as in other places of the Panjáb generally, except at Derá Ghází Khán itself, where Government has gone to the expense of 15 and even 18,000 rupees yearly, to clear them, and for which the Zamíndárs have to pay, over and above the money settlement for their lands, and the percentage as a road fund for keeping up and making new roads; but it is a remarkable fact, or was so at least a short time since, that the canals thus cleared out, were never in the same efficient state as those cleared out by the people themselves.

The only places worthy of the name of towns in this dreary district are, Derá Ghází Khán and Mittunkot; Jámpúr, Derá Dín Panáh, and Mungrotah being merely good sized villages. The other hamlets are mostly small and far apart, and generally of the most squalid appearance, bespeaking the poverty and wretchedness of the inhabitants. The general aspect of the district, with a few exceptions in the vicinity of the river, where there are some fine trees, is bare and dreary in the extreme; the only relief to the landscape and to the eye being the lofty mountains to the west, of which and of whose people, we will now attempt a description.

The hilly tract of country commences on the north from the mountains which form the southern boundary of the river Zhobe, and parallel to those eastern off-shoots or spurs from the Súlímán range, where the southern part of Damán in the Derá Ismaél Khán district ends, and the most northern part of Derá Ghází Khán, viz. the Sanghar district commences; as far south as the parallel of Mittunkot, where both ranges, the Koh-i-sáh or Black range, as the Súlímán mountains are now called, and the Koh-i-Surukh or Red mountains, as the lower chain is termed, make a

sudden sweep to the west as far as Dádur at the entrance of the Boláu Pass ; and from Mittunkot, south as far as Kusmore, the most northern village and frontier post in upper Sindh.

The boundary from west to east occupies the space between the 68th degree of east longitude, the Súlímán, and the lower and parallel range to it, which forms the western boundary of the Derájt.

Between this space and the 29th and 31st degrees of north latitude, the country is also mountainous. To the extreme west also is a chain of mountains which appears to be an off-shoot from the Sufaid Koh, or Spín Ghar,* running almost parallel with the Súlímán range north and south, but with a more westerly inclination. The highest peak of this range is called Kund, on the eastern slope of which the river Zhobe rises, and which flowing north-east joins the Gomúl just before it pierces the Súlímán range on its way to the Indus, which, however, it fails in reaching, the whole of its water being expended for irrigation purposes. On the western slope of the mountain above referred to, the river Loráh rises, which flows south-west through the valley of Pishín, and the other streams rising in its slopes also take a similar direction.

After passing the high range bounding the valley of the Zhobe to the south, we come to the extensive plain of Borí, which is described to me as being exceedingly temperate, and in other respects resembling in extent and appearance the plain of Pesháwer ; and is fertile, well watered, and carefully cultivated. The valleys between it, the mountains south of the Zhobe, and the Súlímán range, are held by the Músa Khel and Esoṭṭ Kákarrs, who mostly follow a shepherd's life, and appear to be divided into a number of small and distinct communities. The Borí plain or valley is in the direct route from Multán to Kandahár through the Sanghar Pass to Pishín.

Other ranges succeed further south, extending to the valley of Zuwárah, and the extensive table-land of Tall and Chotíálí, which is inhabited by the Afghán tribe of Tor (black) and Spín (white) Taríns. More south again are the mountains familiar to

* Spín Ghar in Pus'hto means the white or Snowy mountain, which is also the signification of the Persian word "Sufaid Koh."

those who served on the frontier of Upper Siudh and Kachchí in the years 1839 to 1843, as the Káhun Hills, but more strictly speaking a portion of the Surukh Koh or Red Mountains which form the northern boundary of Belúchístán in this quarter.

The highest portion of the Súlímán range varies in breadth from eight to fifteen miles or more, with a belt of about two or three miles, consisting of *tupahs* or small portions of table-land, and immense piles of rock, forming the highest peaks, and which, being composed of a very hard black lime-stone, have been the origin of the Persian name, Koh-i-siáh, and the Sanskrit term Kálá-Pahár, both of which signify the Black Mountain. It is considerably less in height towards the south of the Takht or throne of Súlímán, than that mountain itself, which Vigne calculated to be about 9,000 feet in altitude; and thus we may safely calculate the average height to be from 7 to 8,000 feet. The whole range can be distinctly seen from the fort and camp at Multán about the time the sun sets behind it, on a clear day, or after rain; and in the winter the higher peaks are generally capped with snow. Its sides and ravines are densely covered with pine forests which attain a great height in many places. The other trees which flourish there are the Zaitún or wild-olive, the Kahwur or Kahwar ——— the Kunár, (*Ziziphus jujuba*), the Arak (*Salvadora Persica*), the Mughelán (a species of *Mimosa* or *Acacia*), the Ketmúm or Káreh ——— the Púlah ——— the Shíshan (*Dalbergia Sisu*), the Pís, a kind of reed used in making excellent mats, and several others. Springs of the purest water flow on all sides, and in many places form small cascades.

The principal wild animals found in this range are, tigers and black bears in the higher parts, pauthers, hyenas, wolves in great numbers, jackals, foxes, deer, ibex, antelope, *parra* or hog-deer, the *gud* or mountain sheep, the *már-khor*, or serpent-eater, and other smaller animals. The birds are various classes of the falcon tribe, and the more common birds of prey, partridges, pigeons, doves, etc.

The second range is called the Surúkh Koh, or Red Mountains from its being comprised of a red coloured stone as hard as the blacker stone of the higher range.

I shall now notice, in regular rotation from north to south, the different *Darrahs*, as the valleys with a pass and stream running through them are designated, together with the different tribes who hold and cultivate lands within them, to a greater or less extent. Many of the tribes are wholly in the hills and hold no lands in the Deráját itself, whilst on the other hand again, the whole of those holding lands in the Deráját, with three exceptions, also cultivate patches of land within the valleys.

THE STÚRÍÁNÍS OR ASTÚRÍÁNÍS.

The Stúríáni or Astúríáni Afgháns of the Loháni tribe hold the southern portion of the *Damán* or skirt, as it means in Persian, of the range of Súlímán—the most southern portion of the Derá Ismáaíl Khán district, and bounding the Sanghar district to the north—which they appear to have not very recently conquered from the Belúchís. It consists partly of the low ridge of reddish gray sand-stone running parallel to the Súlímán range. Their chief village is Oormúk, and the other principal villages are Mangul, containing about one hundred families, situated in a plain three miles from the hills; Samozaí, with about an equal number of inhabitants, nine miles from the hills; Kúey Bahárah, containing six or eight hundred families, six miles distant; and another village in the mountains bearing the same name as the one just mentioned, and peopled by some two hundred families. This portion of the Stúríáni tribe, who are considered quiet and inoffensive, consists of about 1,200 adult males including thirty or forty horsemen, under a chief named Abd-úllah Khán. The remainder, numbering about 4,000 families, are located further to the west. The division to which I refer sold its flocks and herds some years since and took to farming, on account of a feud with the Kákarrs, through whose country they had to pass with their flocks, in the hot season, in their migrations to the high-lands to the west to their *kishlauks* or summer stations.

Z'MURRÍS, KÁKARRS, SHÍRÁNÍS.

The Z'murrís occupy the hills to the west of the Stúríánís and are distant from them some nine miles. They resemble the

Shíránís in their dress and customs, with the exception of being exempt from the rapacious habits for which the latter are so notorious. West of the Z'murrís again are the Kákarrs, a numerous and powerful, yet simple and inoffensive tribe, the branch of which nearest the Z'murrís is known by the name of Esot̄ts. They occupy a tract of country forming a square of about one hundred miles in extent, and follow agriculture and grazing. The Shíránís who dwell about the peak of Súlímán and bound the Kákarrs to the north are a numerous tribe, and can muster at least 5,000 adult males. They are about seven miles distant from the latter tribe.

KHETRÁNS.

South of the Stúríánís, and the most northern Belúch tribe of the Sanghar district, are the Khetráns, a branch of those further south, but at present quite distinct from them under a chief named Muhammad Khán. They occupy the lands between the lower hills and the Surúkh range, and some lands in the plain at the foot of the hills, and are quiet agriculturists. They have charge of the three passes of Wah-wah, or Vahawah, Hájá, and Litarrah, but being weak in point of numbers, and not able to muster above 300 men, they cannot look after them properly, though it may be better now that a strong post of the Punjab Irregulars has been stationed at Wah-wah, which is their chief village and lies close to the hills. The other villages are Kohur, Kútiáni, and Litarrah. A river called the Ganj, which takes its rise in the higher range, flows through Wah-wah valley and town, and contains water all the year round, and consequently the lands are pretty well provided for as regards means of irrigation. The pass is practicable for loaded camels, and the road leads into that which proceeds to Kandahár through the Sanghar pass further south. Between the skirt of the lower range and that of Súlímán, the country is very mountainous, but patches of good land are to be met with here and there, and which are generally cultivated. The Wah-wah valley is about twenty-one miles from the banks of the Indus.

The Khetráns also hold the Liria valley and pass, which is four or five miles south of that of Wah-wah. It is so called after a small stream which flows through it. A few of the Khasrání tribe, who

adjoin the Khetráns on the south and west, cultivate some available land within the influence of this stream, on the banks of which there are several Kunár (*Zizyphus jujuba*), Leyah (tamarisk), Lánah (Camel-thorn) trees, and a flower called the *junglí-gul* is found in great numbers throughout the valley. There appears to be no want of water inside, but out of the valley it is by no means so plentiful; and the extent of the cultivation depends on the quantity of water collected in the various *bunds* or ponds, and from the rains which are often copious in the spring and winter months. There is a road through the Liria pass which leads into that from Sanghar, but it is only passable for men on foot.

KHASRÁNÍS.

The tribe to the south and west of the Khetráns are the Khasránis who hold the Bhattí, Khánwa, and Kawrah passes. They are great thieves, and have given a deal of trouble at different times, so much so as to call for a severe chastisement, which they partially received from a small force under Brigadier Hodgson at the commencement of the hot season of 1853.

The Bhattí pass and valley is about six miles south of the valley of Liria, and is inhabited by about 1,500 of the Khasráni tribe, of whom Mitta Khán and Omar Khán are the chiefs. Their principal village, called after the tribe, is situated about eighteen miles up the valley, through which a small river meanders, and the banks of which are shaded by Kunár, Lánah, and Leyah trees in several places. Out of the valley water is excessively scarce.

The valley and pass of Káuwa is four miles and a half from the preceding, and is close to the skirt of the hills. It also contains a rivulet of pure water, but out of the valley none is procurable. About five hundred families dwell in the hills in this vicinity, and the remainder of the tribe, which altogether may be computed at seven thousand souls, occupy the lands from Khas-ráni-ki Bustí to Gámak in the Deráját.

The chiefs of this tribe receive a cash payment from the British Government, besides certain fees or assignments on the lands termed *Kusúr* and *Barát*; and in former times when the route through their country was frequented by the traders from Kábul

and Ghuzuí, they received a transit duty of about three shillings for each loaded camel. At present they are very poor.

Between the different valleys already enumerated and the Black Range, as I shall in future call the Súlimán mountains, the country is extremely broken, but occasional *tupahs* or plateaux may be found which could be brought under cultivation with very little trouble. A small number of Khasránís, amounting to about two hundred families, dwell between the most eastern valleys and the Black Range, on the highest and western slopes of which they graze their flocks, and where they also devote some attention to agriculture. They are, however, notorious robbers, and are in the habit of coming down the valleys which run parallel to the Black Mountains on the east, which open out on the southern part of the Derá Ismáeíl Khán district of Damán, and succeed in carrying off cattle, often without being pursued, into their own fastnesses.

The lands of the Esoṭṭ Kákaraṣ commence about sixteen miles from the Khasrání bounds, on the western slope of the Black Range towards the north, which in this direction is about twenty or twenty-two miles broad from east to west. The Æsá Khel Kákaraṣ, to the amount of three thousand adult males, dwell to the south-west of the Khasránís. They are both cultivators and shepherds, and possess numerous flocks; and occasionally they bring broad-tail sheep and goats into the Deráját for sale. They are of the Lúní tribe, and acknowledge Shikarí Khán as their Chief. The Khasránís are bounded on the south by the Bozdárs, with whom they are on amicable terms.

MUTKÁNÍS.

The Mutkánís are wholly in the plains. They cultivate the lands to the west of the Khasránís and Bozdárs, about Sanghar and Mungrotah, and are a very quiet community containing about eight or nine hundred adult males. Their nominal chief is Asád Khán, but Musú Khán appears to exercise the greatest power over them.

BOZDÁRS.

The next tribe to the south are the Bozdárs, who are wholly in the hills, which may account for their being arrant thieves and

exceedingly troublesome and turbulent. They are powerful in point of numbers, and can muster about 3,000 men if required. The chief is named Dost Muhammad Khán, who is allowed a monthly sum by Government, which may be properly termed "Black mail." He also holds several *Maafi* or rent-free wells and lands besides receiving *Barát* fees already mentioned. The Bozdárs hold the passes of Sanghar and Mahoey. Another branch of the tribe acknowledges one Nowrang Khán as their chief, and they go by the name of Nowrang Bozdárs.

The Sanghar pass and valley is so called from the small river running through it, which takes its rise on the eastern slope of the Black Range. It flows all the year round, and quantities of wheat and juwár are produced within the influence of its fertilizing stream. Other lands depending on rain and the water of the *bunds* or ponds for irrigation, are also cultivated by the Bozdárs, who here amount to about two thousand souls.

Between this valley and the Black Range there is an immense quantity of land fit for cultivation along the banks of the Sanghar river, which is generally taken advantage of by the Bozdárs of the Schárñí and Súwarñí clans. The Gulámání branch occupy the highest slopes of the Black Range both on the eastern and also on the western side adjoining the Afghán country. The higher range is, however, but thinly peopled, and is generally uninhabited. The Zaitún or wild olive, and the Púlah or Phúlah tree flourish on the banks of the Sanghar river towards its source, and lower down the valley the Shíshúm and the Fig.

The road through the Sanghar pass is very good, and is practicable for both man and beast, and also available for artillery. It is in fact the high road to Kandahár by the plain of Borí and the valley of Pishín; but the pass itself is completely in the hands of the Bozdárs until the Black Range is passed, and if they chose, they might throw obstacles in the way, but soon to be surmounted it is hoped, by a few staunch troops and the minié rifle. To us probably they would only be too glad to render assistance, and in the event of any necessity for the speedy arrival of troops at Kandahár, which might be reached from Multán by this route in twelve days, their services might be secured and our rear also, as

well as the communication kept up, by a small body of troops stationed on the western slope of the Black Range in the Bozdár country, the temperature of which, even in the hottest months of the year, is never disagreeably high. From their proximity to us in the Deráját there would be no fear of treachery, as in case of necessity a body of troops could, in a single night or in one day, advance half way through the pass and along the road to support this post, or aid in its withdrawal, which might thus be effected in one forced march. In case of an advance to assist our ally, Dost Muhammad Khán, and with a previous arrangement on his part, immediately on clearing the Black Range, a force advancing from Multán would enter a fruitful and temperate district where supplies and forage of all kinds and descriptions might be obtained; and this in itself would tend greatly to lighten the force, from there being no necessity for burthening it with a quantity of Commissariat stores, or even as much as usual.

Springs of good water are also numerous, and this aliment can be procured in any quantity at the different stages along the line of march. It occupies a caravan about three hours from the time of entering the last pass which leads through the Black Range, until the difficulties are overcome and the western slope gained. After passing this range the mountains again begin to rise at a distance of about twelve miles to the west, but they are comparatively low, and the difficulties of the road are by no means so great. The passage over the former range would be, however, a difficult matter, should the Bozdárs occupy and fortify the defiles beforehand.

The next valley and pass to the south is that of Mahoey, which contains some good land, and is held by the Bozdár tribe. A small river flowing from east to west gives name to the valley, which leads into that of Sanghar, distant from it seven miles. The road is practicable for loaded camels and such like beasts of burden, should the Bozdárs throw no obstacles in the way. The Gulámání branch of this tribe dwell about the Black Range, and to the west of them again the Lúni Kákarrs, who are by far the most numerous tribe in this vicinity.

The Bozdárs are bounded on the east by the Mútkánís, south by

the Lunds in the Deráját and by the Húdiáni Lágháris in the hills. They are on friendly terms with the Lúni Afgháns and the Khasrání Bélúchís, who bound them to the north-east and west, but they are at enmity with Mír Hádjí and his Khetráns who bound them to the south-west. The Jaafir Afgháns, a small community of about 1,500 souls, whose chief village is Ddlágh, adjoin them on the north. They are chiefly agriculturists, though some are traders, and their lands are extensive, well-watered and produce considerable quantities of wheat and other grain.

LUNDS.

The Lund tribe like the Mutkánis are wholly in the plains, and adjoin them to the south. They cultivate the lands from near the foot of the hills at the Súri pass to round about Pír Amdáni, their principal town, Kot Kúndah, Shádun, Rámun, Gámán, Kálá, etc. The lands towards the river Indus are generally held by either Hindús, Suyeds or Jaṭṭs. Those belonging to the Lunds depend wholly on rain and the water of their ponds for irrigation, but they always manage some how or other to keep their lands in cultivation.

From the Súri pass to near the Black Range, a distance of eighteen or twenty miles, there is no land fit for agricultural purposes, and it is therefore generally uninhabited. The Jélálání Bozdárs dwell about the high range on the western slope to the amount of about three hundred families. They follow agriculture, and dwell in small walled villages called Kotlahs. The cultivation is scanty and depends on rain to bring the crops to perfection. A portion of the Lúni Afgháns occupy two walled villages in Kotlahs a short distance to the west of the Bozdárs.

Inside the Súri pass there is a lake said to be four or five miles in extent, containing hot water that is constantly running or in motion, and the peculiar phenomenon respecting which is, that the mineral water rises in waves or eddies which again almost immediately disappear. The pass belongs to the Lunds, and the valley appears to be uninhabited.

The chief of the Lunds is Fazal Alí Khán; and the tribe, which is quiet and easily managed, can muster about 1500 adult males. They have the Mutkání tribe on the north, the Bozdárs and

Hudíáni Laghárís on the west in the hills, the Khosahs to the south, and Suyeds, Jaṭṭs, and Hindús towards the Indus on the east.

KHOSAHs.

South of the Lunds in the Deráját are the Khosahs, who are acknowledged to be the bravest of the whole of the Belúchís. They have the name of being great thieves, but they are really no worse than their neighbours. I believe a deal of rascality carried on by the Lagharís, has from time to time been unjustly laid at the door of the Khosahs. They are a powerful tribe, when their bravery is taken into account, being able to muster 1600 or 1800 men; but they are split into three divisions, of whom Kourah Khán, Azím Khán, and Khán Muhammad respectively are the chiefs. The former, the real and rightful head of the Khosah tribe, is a fine old fellow, who rendered good service to the British during the rebellion of the incorrigible Multánís, at the outset of which, (and not when it was found that the enemy was the losing side,) he joined the force of Lieutenant H. B. Edwards and the Seikh Colonel Cortlandt, bringing with him about a thousand of his clan. He enjoys, in comparison with some of the Multáni Patáns, (who only deserted Mulráj at the last hour,) but a small pension for his faithful services. His son, however, holds the rank of Ressáldár in the Deráját Mounted Police.

The Khosahs are with few exceptions, wholly in the plains. They are at enmity with the Laghárís and Bozdár clans but are on friendly terms with the Khetráns, whose chief Mír Hádjí is connected with the Khosah chief by marriage, having espoused, I believe, a daughter of Kourah Khán's. When the late Díwán Mulráj defeated the Khetráns in their own fastnesses, this chief made influence for himself with the Díwán through Kourah Khán.

The next valley or cluster of valleys, to the south of that of Súrí held by the Lunds just described, is known by the names of Maṭṭí Kalerí, Sur, and Reh-kaṛṛn, from four small streams flowing through them from north to south, and close to the skirt of the hills. About one hundred and twenty of the Khosah tribe dwell in this valley or valleys, which contain springs of salt and brackish water. The Bozdárs of the Mahoey, or Mohey-wálá clan dwell in the

higher ranges of the Black mountains parallel to these valleys, and the Gulámání Bezdárs round about it and lower down on the western slope facing the Afghán country. Streams and rivulets are numerous in this direction, and juwár, makai, and wheat are produced in some quantities, together with a little cotton sufficient for home consumption. The principal trees are the Zaitún or wild olive and the Púlah.

There is a road through this valley to the Afghán country which is practicable for camels, and water is procurable at each stage. It, however, leads into the pass through the Black Range in the Bozdár country already described; and as the Bozdárs hold the principal and more difficult defiles of the passes leading into it, they are able to throw obstacles in the way. Beyond the Black Range to the west, in this direction, there is a level tract of country, or large open valley, as it may be more properly termed, about ten miles in breadth belonging to the Lúní and Kákaṛ Afgháns already referred to. Beyond this the hills again rise, but they are not nearly so lofty as those to the east.

South of the valley and pass just described are the small Darrahs of Ghází, Satá'í, Beh-lab, Káhbí, Súrí, and Gháman, so called from the small streams flowing through them, which, at a short distance from the hills, are wholly lost or expended in the irrigation of the lands. Six hundred Khosahs cultivate those spots close up to the foot of the hills, which are within the Yáru Bátil village bounds. From this to the eastern slope of the Black Range distant about twenty-five miles, the country is totally uninhabited, but the western slopes are held by the Khetráns. There are no roads fit for beasts of burthen through these small valleys, and, even for men on foot, the defiles leading into the great route are difficult in the extreme.

Next in succession south are the small valleys of Sufaidú, Káru or Gáru, Súr and Ráey, all of which are within the Yáru Bátil boundary. The Khosahs in this direction acknowledge Khán Muhammad and Khuda Baksh as their headmen. About six hundred of the tribe cultivate the lands close to these Darrahs, which are very small and distant one or two miles from each other. There are springs of water in the valleys of Sufaidú, Súr, and Káru, but in the latter is a mineral spring, the water of which is

extremely bitter. A few families of the Chandíah and Sháhání Bozdárs dwell between these valleys and the Síáh Koh, or Black Range. The former live by plunder alone, but the latter have some cattle, and they cultivate about a hundred acres of land, which is irrigated from the streams rising in the mountains just mentioned.

Next in rotation are the small villages of Dalánah, Zai, and Sabkú-ah, the only one of which containing a pass of any consequence is the former, held by the Khosahs under Azím Khán, six hundred of whom dwell close to the skirt of the hills, and about forty families within the valley itself. They keep goats and buffaloes. There are a few date trees in this valley which are considered great rarities by the Belúchís. From this *madd, awl*, or camp, within the Darrah to the Black Range is about twenty-one miles, the whole of which space is covered with lofty and rugged mountains over which there are no roads, and which men on foot can, with difficulty, penetrate. There are a number of the Laghári tribe, who adjoin the Khosahs on the south, settled near Dalánah village. Beyond the Síáh Koh parallel to these valleys are the Khetráns who occupy a very large tract of country, and beyond these again the Afgháns, and further south the Murrís.

The most important Darrahs within the Khosah bounds have now been mentioned, but the Khosahs likewise hold all the country at the foot of the hills from the Ghuzí pass north to Dalánah south. These lands depend entirely on the quantity of water of the mountain streams, with that collected in the different ponds, and from the occasional rains, for irrigation; and in seasons of drought the Khosahs are under the necessity of deserting them for other lands nearer to Derá Ghází Khán. Some of the tribe are graziers and have numerous flocks. They are bounded north by the Lunds, and south and west by the Laghárís. Their chief villages are Yáru and Bátil, besides several smaller hamlets.

LAGHÁRÍS.

The Laghári tribe dwell partly in the Deráját, from the village of Chotí Pá'in to the foot of the hills, and partly in the mountains. Their chief villages are Widor, Sukhí-Surwar, Chotí Bálá, and Chotí Pá'in. They are powerful in point of numbers and can mus-

ter to the amount of two thousand adult males, but they are not held in much estimation for their bravery, and are notorious thieves, but exceedingly sly ones for Belúchís, indeed they may be termed the foxes of Roh. Their chiefs Jellál Khán and Jemál Khán, who receive a pension from Government, or some money allowance, which is just the same, not long since were all and every thing with the Local authority, but lately their power appears to have been on the decline. They were engaged in the Multán rebellion, and like the Multání Patáns, who first fomented it and made Diwán Mulráj their tool, were one of the mainstays of the rebels, until they discovered that the Diwán's was the losing side. The Laghárís, however, although they at last left Mulráj, cannot be accused of treachery and falsehood, which appears exclusively an accomplishment, or part of the nature I may say, of the Pátans of Multán, for the former did not desert to the enemy for the sake of the loaves and fishes as the latter did.

The Laghári tribe hold the Darrahs and passes of Widor, Sukhí Surwar, and Chotí. The former is so called from the large village of that name about sixteen miles west of Derá Ghází Khán, and eight or nine miles from the skirt of the first range of hills. It is the principal village of the Laghári tribe, but the Widor pass itself is within the bounds of the village of Beylah, of which Mirán Laghári is the headman. Two hundred of the tribe cultivate lands close to the entrance of this valley, which is itself held by the Hudiání branch of the tribe, who, to the number of five hundred families, are dispersed in small hamlets or *awls* between this valley and those on the eastern side of the Black Range. The Hudiánís are arrant robbers, extending their depredations both to the property of the Afgháns to the west of the mountains and to the Deráját to the east; all is fish that falleth within their net. The valley contains some springs of pure water, which is also abundant from this to the Afghán country. At the hamlet or *awl* of Hudiání further up the valley, there are numerous Shíshum trees. The road through the pass is practicable for beasts of burthen as far as the high range, but the defile leading over it is in the Khetráu country, and is so narrow that one person can scarcely pass.

South of Widor is the pass of Sukhí-Surwar, so called from the

town and shrine of a Muhammadan Pír or saint bearing that name. The town and shrine are built on a spur from the lowest range of hills, beneath which, to the north, is the stony bed of a torrent or mountain stream, but it is always dry save after heavy falls of rain in the mountains. The Majáwirs or attendants at the shrine cultivate a small quantity of laud, which is dependent on the same sources of irrigation as other lands already described. The people are supplied with water, black and fœtid in smell, from the sandy bed of the torrent above mentioned, at a place three miles up the defile through which it finds its way, in which large holes called wells are dug, and on this supply they wholly depend. The hasty sketch which accompanies this paper shows the entrance to the defile referred to, and will give some idea of the style of country and scenery.

The country between this town and the Black Range is generally mountainous in the extreme, but here and there patches of available land are to be met with.

The Sukhí-Surwar pass is the direct route to Kandahár through the district of Tall and the Pishín valley; and in Akbar's time couriers are said to have been in the habit of reaching Multán from that city in six days. Water is plentiful along the whole line of road, which is not only practicable for loaded camels, but for artillery also, or at the worst could be made so very easily, for there are no great natural obstructions to prevent it. I have already given an account of the town and shrine in an article which appeared in a former number of the *Journal of the Asiatic Society of Bengal* for September, 1855. The town and pass both belong to the Laghárís.

There are several smaller valleys to the south of Sukhí-Surwar, viz., Ghází-wár, Kun-hí-wár, Sufaid Gharí, Kháttí, and the Káhá or Harrand pass, including that of Chotí, so called after the village of Chotí Bálá, or Higher Chotí, situated close up with the hills, but they are all within a few miles of each other, and of little consequence. They are mostly uninhabited, and are very similar to those already noticed.

I was informed by Jellál Laghárí, who visited me whilst at Sukhí-Surwar in April 1853, that at the distance of a day's march inside

the lower range of hills, through rather a difficult country, he possesses a tract of table-land of some considerable extent, well wooded and further adorned with a fine lake. He told me that he usually retired to this place with his family in the hot season; and he spoke in high terms of its beauties, of its climate, and of its fruits, some of the grapes from which I have often tasted. He promised to take me to this pleasant spot, this Roh Felix, if I could obtain leave of absence for that purpose, but I soon after left the Deráját and lost the opportunity, of which I was most anxious to avail myself. A locality of this kind, within reasonable distance, and in the country of a friendly tribe, would be a highly desirable place for a little recreation and cool air in the hot months, for Europeans condemned to broil at Asuní and Derá Ghází Khán.

The Laghárís are bounded on the south by the Gurcháhís, and west by the Khetráns, to give some account of whom and of whose country, we must for a time leave the Deráját and proceed west, before describing the valleys and passes further to the south.

KHETRÁNS.

The Khetráns are a numerous and powerful tribe occupying a tract of country east and west of the Súlimán or Black Range, about sixty miles in width and eighty in length from north to south, and extending from the parallel of the Súrí Darrah of the Lund tribe to the boundary of the Murri country, the most southern portion of the Highlands of Belúchistán on the north-east. The chief of the Khetráns is Mir Hadjí Khán, who can muster a force of 3,000 fighting men including about 1,000 horsemen. They reside generally in small forts or walled villages called Kotlahs. Their country is well-watered and temperate, and they cultivate a quantity of grain of which wheat, and *makia* (Indian corn) appear to be the staple kinds, together with a small quantity of cotton sufficient for home consumption. They also possess numerous herds of camels and other cattle, and flocks of sheep and goats. On the west they are neighbours to the Lúní and Kákarr Afgháns; on the north to the Músa Khel Kákarrs and the Bozdárs; on the south to the Murrís; and on the east to the Laghárís and Gurchánís.

The Khetrán country is distant about thirty-five or forty miles

from the banks of the Indus, and about half that distance from the first or lower chain of hills. The Black Range here averages about nine miles in width from east to west, with a belt in the centre from one and a half to three miles in breadth, and from which the highest peaks shoot up. This is the most rugged portion of the whole, and correctly speaking, forms the true boundary of Síwistán on the east and south. There are many level spots capable of cultivation watered by numerous small streams, which, after heavy rains, increase considerably in volume. Those rising on the eastern slope of the Súlimán Range in some instances find their way into the plains of the Deráját, and those on the western slope flow in that direction, fertilizing the country in their track.

That part of the high range which is inhabited by the Khetráns runs almost due north and south like the more northern portion; but a short distance to the south of the parallel of Derá Ghází Khán, in 30° of north latitude, it makes a bend towards the west for about fifty miles, and then runs at nearly right angles from east to west towards Dádur at the entrance of the Bolán Pass. In this lengthy valley, formed by the southern slope of the Black Range just referred to, and the northern slope of the Surukh Range which runs parallel to it to the south, lies the fort and town of Káhun, so famous for its defence during the Afghán war; and in the latter range the equally famous Nufúsk Pass, from which the late Major Clibborn and his troops were forced to retire after severe loss in attempting to relieve that post. The westerly bend of both ranges is held by the Murí tribe and both are generally known as the Káhun Hills.

The road from Multáu to Kandahár by the Bolán, lies through the Harraud pass to Káhun, which I shall have occasion to refer to again in a future paragraph.

The Khetráns are on friendly terms with the Khosahs and the Laghárís, but are at feud with the Lúní Afgháns, the Bozdárs, and the Murrís.

So lately as July 1855, the Hamzahzai and Mísa Khel clans of the Lúní and Kákarr Afgháns, made a raid on the lands of the Khetráns and Hudíauí Laghárís and carried off a number of their cattle after killing seventeen of the latter. The assailants, however, were pur-

sued by the Khetráus, and Laghárís, who mustered to the number of two thousand. They came up with them before they could succeed in reaching their own strongholds, and rescued the cattle after a severe skirmish, in which the Afbáns are said to have lost one hundred and sixty men killed and wounded.

GURCHÁNÍS.

The tribe to the south of the Laghárís are the Gurchánís, the chief of whom Hyder Khán holds an appointment in the Deráját mounted Police, and enjoys *Kusúr* and *Barát* fees or assignments on the lands. The tribe is divided into three septa—the Lashárís, Durkánís, and Chachrís, which are again subdivided into several smaller clans, who altogether can muster at least two thousand adult males. About one half the tribe are shepherds and graziers and dwell in the hills, the remainder cultivate the lands in the vicinity of the fort and town of Harrand, the former of which was built to keep them in awe, as well as to defend the pass leading by Káhun, Siri, Bagh, Dadur and the Bolán Pass, to Quettah or Shawl and Kandahár. Their chief villages are Lal-gurh, Chutú, Thall Wuzár, and Pitáfi. They hold the different minor Darrahs from that of Chotí of the Laghárís, as far south as the valley and pass of Cháchur, which together with those of Khátti, Káhá or Harrand, and the pass of Khalgerey, are the furthest to the south, and the most important of the whole.

The lands within the Káhá or Harrand pass are cultivated by the Gurchánís. They are well-watered by a stream running through the valley, which also supplies the *tupah* or plain on which Harrand stands.

The Cháchar valley contains a mineral spring and a little sweet water, but it is totally uninhabited, and is chiefly remarkable on account of the great road to Quettah or Shawl by Káhun and Dádur which runs through it. It is practicable for beasts of burthen, but I am informed that it is not so good a road as that through the Súrí valley further south. The different encamping or halting grounds by this route are ;—1st, To Múní, 12 miles ; water bad, and quite hot. 2nd, To Tobah, 12 miles ; excellent water. 3rd, To Gond, 12 miles ; hot and brackish water. 4th, To

Kaṭṭar Pahár, the boundary of the Gurchání country, 15 miles; water good. The next six stages lead through the Murri country, after which the territory of the Khán of Khelát is entered.

DRÍSHAKS.

The tribe next to the Gurchánís to the south, are the Drishaks, who are very peaceably inclined, but much bullied by the Gurchánís. They are pretty powerful in point of numbers, and can muster 2,000 adult males, or even more. The chief is named Bakshan Khán who receives some *Kusúr* fees, and their chief village is Asuní, at which a strong detachment of the Púnjab Irregular Force is stationed, consisting of half a Light Field Battery of three guns; a Regiment of Cavalry; and a wing of an Infantry Corps. The other larger villages are Bágh, Rajunpúr, and Fazilpúr. The Dríshaks are bounded on the west by the Bughtís and Gurchánís in the hills, and on the south by the Mazárís in the Deráját.

As we proceed further south the dreariness of this inhospitable region increases, and the country for many miles, both in the Deráját and in the hills, is a howling wilderness. The first Darrah or valley south of Cháchur, the most southern in the Gurchání country, is that of Fujurú, through which a road leads into the great route to Afghánistán by Tall and Chotiálí. The valley is quite sandy, but on the southern side the dreariness is somewhat relieved by a few trees. From this to the Gurchání country, a distance of about thirty miles, the whole space is without inhabitants and without cultivation.

Four miles and a half south of the preceding is the valley of Baghárí with a pass, which also leads into the great route to the Afghán country by Tall and Chotiálí. Like the preceding it is sandy and unfit for cultivation. It has a few trees, but is uninhabited. From the skirt of these hills towards the east, the nearest inhabited spot within the British territory is the village of Futtihpúr distant six miles, where a few of the Drig tribe are located.

The valley of Jehazigí or Jehazkí is six miles further to the south. A road winds through it leading into the great road from Harrand but it is difficult and very heavy in many places from the sandy nature of the soil. It is uninhabited, and there are no signs of

cultivation near it for a number of miles in the direction of the Indus. The valley itself is thirty miles distant from the high range, which in this direction is inhabited by the Gurchánís.

Next in rotation comes the Thok valley, distant four or five miles from the preceding. The whole distance from this to the Black Range is mountainous and sandy with a few stunted trees and shrubs scattered here and there. Water is also very scarce, and even when procurable it is exceedingly bitter. About twenty-five miles to the west of this valley there is a village belonging to the Gurchání tribe called Múní or Marrí, inhabited by about three hundred people, who are mostly shepherds. There is no cultivation in the British territory to the east nearer than the village of Gámú, a distance of nineteen miles, containing five hundred inhabitants chiefly of the Drig clan.

A few of the principal stages by the road through this valley to the Afghán country by way of Tall and Chotíálí, are : 1st, To Makárí 12 miles, where there are a number of shady trees, but the water is bitter. From thence to Phora Phaṭṭ 17 miles, where there is excellent water to be procured, and several shady trees. The next stage is Phála Wagh, about the same distance as the last stage and possessing similar advantages. The next journey brings the traveller to Lassú 12 miles, which has no particular advantages as a halting-ground ; and from thence to Bákí or Bárí Khán in the Khetrán country, a distance of 19 miles, from whence a long march of about 30 miles brings you to Kholo or Kaholo, where the water is pure and abundant, and shady trees are available.

The Chák or Chág valley and pass is three miles from that of Thok, and the country as far as the Black Range, a distance of nearly 40 miles or more, is uninhabited. The valley contains nothing but sand and a few stunted shrubs, indeed sand and rocks appear to be the principal, if not the only variations of the landscape in this part of the Deráját. From this Darrah a road leads to the village of Kot Islám Khán, the head-quarters of the Bughtí tribe, which is parallel to the Súrí Darrah further south. But the whole country between is a perfect desert, without inhabitants or sign of cultivation. The nearest inhabited spot in the direction of the Indus, is the village of Kádirah belonging to the Mazárí tribe, and thirty miles distant.

As we proceed further south from Mittunkot, the breadth of the belt of cultivation gradually decreases, until at the village of Roján it does not extend more than two or three miles from the western bank of the Indus.

The valley of Chák and those valleys which follow, are parallel to the lands cultivated by the Mazáris in the Deráját, and to the Murri and Bughtí country to the west, but, as already remarked, for several miles in breadth the country at the foot of the lower range of hills, and for a considerable distance inside, is totally uninhabited and generally without water; and these obstacles alone tend as much, if not more, to restrain the Murrís and Bughtís from making raids in large bands on our frontier in this direction, than the few troops scattered along it at great distances from each other, as the latter have, on more than one occasion, found to their cost. It is impossible for a large body of men, particularly horsemen, which form the principal strength of the Belúchís on such occasions, to subsist within these hills or even in the valleys at the skirt of them, which they would naturally do in all probability to wait for a favourable opportunity to pounce upon their prey. Small parties, however, do make their appearance occasionally in the Mittunkot district, and I recollect that in the hot season of 1853, they passed the line of frontier posts without being discovered for some time, and although subsequently pursued, they succeeded in carrying off some cattle and cutting up some of the pursuers.

MAZÁRÍS.

The Mazáris who occupy this part of the Deráját are a numerous tribe containing about 4000 adult males, of whom Dost Alí, and Mahabat Kháu are the chiefs. There are about eight hundred (Soolais) located at Knsmore, the most northern village of Upper Sindh. The remainder of the tribe is distributed from the village of Bhágrú downwards, and are all in the plains. They receive half the revenue *inaam* or rent free. They are bounded on the west by the Bughtis, south by the Brahúís, and north by the Dríshaks.

The next valley south of Chák is that of Gándrusí from which it is distant about three miles. Like the others south of Chá-chur, it is without inhabitants, but it contains several warm

mineral springs, as also a little drinking water and a few trees. The pass through it leads into the Khorasán route, but it is difficult. It is about fifty miles from this to the Black Range, and to Hasan Sháh ke Kotlah, the nearest hamlet in the British territory, which is peopled by a few Suyeds, is a distance of thirty miles.

As we proceed further south the country becomes more broken, and the lower range is not so well defined as hitherto, being in many places much lower than that which we have passed on our way south. The first valley south of Gándrusí is called Tahání from a small river flowing through it, which rises on the western slope of mount Gendárí (referred to in a subsequent paragraph) and is distant from the last valley nine miles. It can scarcely be called a valley, for the ground all round is very much broken, and rises on all sides, in mounds and bluffs which are generally of considerable height. There is a road through it along the stony banks of the river when full, and along its bed when its waters have somewhat subsided. It crosses the Harrand route, and enters that leading into the Afghán country through Tall and Chotíálí, but it is difficult and tedious. The Black Range is thirty miles distant from this Darrah and the nearest village to the east is Badli belonging to the Mazáris, distant eighteen miles.

The Zangí Darrah, so-called from a river of this name rising on the eastern slope of Mount Gendárí, which forms the pivot, if I may be allowed to use a military expression, on which the Surúkh Range turns directly west, and at right angles to its former direction. It proceeds thus for about sixty or sixty-five miles, and parallel to the Black Range on the north in its bend to the west, the two forming a long and extensive valley which runs up almost to Sarwod to the north of Lehrí in Kutch Gandáwah, and in which, about half way up, lies Kúhun the chief town of the Murrís. The Pass of Nufúsk is in the southern or Surúkh Range.

The Zúngí valley, which is very stony and much broken, contains but one small hamlet belonging to the Bughtís named Alí Khán, and the only water procurable in the valley is bitter. The road leading through it is steep and difficult for some distance, but improves as the traveller proceeds westwards to Káhun, which is eight stages distant from this valley. The different halting-places

are ; 1st, Thak, a distance of ten miles, where water is abundant, and several Zaitun or wild olive and Kabor trees afford shelter ; 2nd, to Nathál, about eleven miles ; water procurable, and a few trees ; 3rd, to Burbur, or Barbur distant twelve miles ; trees and water ; 4th, to Tharí or Ttharí, twelve miles ; trees and water as at last halting-ground ; 5th, to Marú or Murú, twelve miles ; water procurable ; 6th, to Pátur (on the Ilassí river, of Walker's map) on the banks of the Súrí river, a distance of thirteen miles, water and trees ; 7th, Kála Pání, eleven miles ; trees and good water ; 8th, to Káhun a distance of thirteen miles.

Four miles to the south of the Darrah just described, is that of Jíarí, which contains a few trees. Water is also procurable in small quantities. It is exceedingly sandy and mountainous, and is uninhabited. The road through it joins the Káhun route, and is steep and difficult in many places.

The next and last Darrah in the Derá Ghazí Khán district is that of Súrí, so called from the river of this name which rises in the Dubb hills, a little to the west of Mount Gendarí, and is about twenty miles from Kot Islám Khán, the principal village of the Bughtís, which is situated at the foot of the hills. There is a spring of pure water in the valley, and several *jál*, *sí-áh*, and *mughel* trees. Towards the east it is uninhabited, but further up the valley there are a few small *awls* or hamlets belonging to the Bughtí tribe. The road winds along the banks of the river, and sometimes through its bed, but like all similar routes it is tedious and steep in many places. It is quite practicable for camels and horses, but not for wheeled carriages, though on the whole it is the best road south of the pass of Sukhí Surwar. The village of Sháhwálí containing about six hundred inhabitants of the Mazarí tribe, is nine miles from the entrance of this valley in the direction of the Indus.

MURRÍS.

The Murrí tribe holds the mountainous country commencing from a few miles to the west of the Surúkh Koh or Red Range, which with its Darrahs from Fujrú south, have, with the exception of those of Zangí and Súrí, been mentioned as generally very sandy,

stony in many places, and uninhabited as far as the southern slopes of the Black Range, to the north of which the Murrís are bounded by the Kákarr and Lúni Afgháns; and westward towards Dádur at the entrance of the Bolán pass. They are bounded on the north by the Khetráns, and Laghárís, and south by the Bughtís and Brahúís. Their chief town is Káhun already referred to.

The Murrís are a powerful tribe, and their present chief Dín Muhammad Khán, can bring 3,000 of his clansmen into the field at any time, about one-third of whom are well mounted on the hardy horses of the country. They make occasional raids into the Mit-tunkot district, but in very small numbers, although as I have before remarked, merely restrained from undertaking greater expeditions in the same direction by the inhospitable nature of the country, where water is exceedingly scarce and only procurable even in moderate quantities at certain places, and where food, both for man and beast, has to be carried with them.

BUGHTÍS.

The last tribe remaining to be noticed as appertaining to this imperfect sketch of Roh and its people, are the Bughtís, robbers more notorious even than their neighbours the Brahúís. They acknowledge Islám Khán and Daría Khán as their chiefs, the latter, however, has but little power. Although the Bughtís have been much broken up by Sindh policy, and a large number to the amount of about 12,000 have been settled in and around Larkhánah in that province, yet they still can bring together, in case of necessity, some 4,000 adult males. They pay little or no attention to husbandry, and mainly depend on plunder for subsistence. Within the last few years two hundred families of the tribe under Daría Khán the partner in the chieftainship, have joined the Murrís.

When Lieutenant R. Yongg of the Bengal Engineers, who was employed in a civil capacity before the annexation of the Panjáb, went into the Lower Deráját in 1849, to settle the lands of the Drísháks and other tribes, three hundred of the Bughtís became desirous of turning their swords into reaping-hooks, and waited on that Officer along with Gourah, the brother of Daría Khán above mentioned, and requested that a portion of land might be allotted

to them, but their reasonable request, from what cause does not appear, was not complied with.

It was whilst in this vicinity, that Lieutenant Young penetrated into the hills as far as the mountain of Gendári, and made a rough survey, the sketch of which I have embodied in the map accompanying* this paper, and for which, as well as other information on the present subject, I am much indebted to him.

Before bringing this paper to a close I must not forget to offer a few remarks regarding the former trade of the Deráját, which has now greatly or almost wholly declined. During the energetic rule Sáwan Mall and Díwán Mulráj his son, to whose government of Multán the present district of Derá Ghází Khán was attached, the Afghán merchants used to pass through the latter district by way of Harrand, Sukhí Surwar, and Sanghar to Multán, because the customs duties were much lower than in the sister Derá; for their proper route, or that generally adopted, lay through Derá Ismaeíl Khán and Leiá to Multán, from whence a few passed down to Sindh. They arrived in October and November, and returned again in April, taking back indigo, chintzes, white cotton cloths, shoes, and weapons, particularly shields from Derá Ghází Khán, which appear to have been held in considerable repute. The chief imports were *gur* (a coarse kind of sugar), some intoxicating drugs; and small quantities of *barak*, a cloth made from camels' hair, and the fine wool or *pashm* of Afghánistán, and small quantities of fruit, chiefly dry. Other Caravans or Káfilahs which came from Kandahár by Quettah or Shawl, and the Pishín valley by way of Harrand, used to bring down very fine oxen for the Seikh artillery and for general sale, together with goats, a few sheep, horses, carpets, and dates of a superior quality. These again used to take home with them, quantities of silks, white and colored cotton cloths, shoes, steel goods, and other articles, but they have, since the annexation of the Panjáb, been stopped by the robber tribes of Roh, who used to receive handsome presents from the Názims of Multán as the price of forbearance. The transit duties now are insignificant.

* This map has not been received.—ED.

On a new Lagomys and a new Mustela inhabiting the north region of Sikiin and the proximate parts of Tibet.—By B. H. HODGSON, Esq., B. C. S.

I have just obtained from the northern region of the Sikiin Himalaya and the proximate part of Tibet some fine Mammal specimens, among which are two species which seem to me new, and the rather in that I have several samples of each species in very fine condition inclusive of the skulls. I subjoin a summary description of both.

Mustela Témon, nob.

Témon of the Tibetans.

This species is $9\frac{1}{2}$ inches long from snout to vent and the tail is $6\frac{1}{2}$ more. Its fur is short, soft and straight, being scarcely longer on the tail than on the body. The colour is, above and laterally, with the entire tail, brunnescent fawn; below, entirely pale pure yellow save the head and margin of the upper lip, which, as well as the limbs, are canescent; the last, however, with more or less of a brownish tint to the front or externally. The tail is $\frac{2}{3}$ the length of the animal. The fur is $\frac{3}{8}$ of an inch long and very fine. The dimensions are as follows:

Snout to vent,	0	9	$\frac{1}{2}$
Head,	0	2	0
Tail and hair,	0	6	$\frac{1}{2}$
Tail less hair,	0	5	$\frac{1}{2}$
Ears,	0	0	$\frac{3}{4}$
Palma and Nails,	0	1	$\frac{1}{8}$
Plantia and Nails,	0	1	$\frac{1}{2}$

Lagomys Curzoniæ, nob.

Abra of the Tibetans.

My specimens were procured in the district of Chumbi. They are three in number and in fine preservation and high state of fur. They are quite alike in size and colour and demonstrably mature from the state of the teeth. They measure $7\frac{1}{2}$ inches from snout

to vent and are of a murine fulvous colour, paling and canescent below and on the extremities. The fur is exceedingly soft, full, and smooth of two sorts, or woolly and hairy, but both of silken delicacy, internally dark slaty blue, externally fawn colour, more or less obscured and darkeued by the internal colour. The dimensions are as follows :

Snout to vent,	0	7	$\frac{1}{2}$
Head,	0	1	$\frac{3}{4}$
Ears,	0	0	$\frac{3}{4}$
Snout to eye,	0	0	$\frac{7}{8}$
Eye to ear,	0	1	0
Palma and Nails,	0	1	$\frac{1}{8}$
Plauta and Nails,	0	1	$\frac{1}{4}$

This beautiful little animal is appropriately dedicated to the Hon'ble Mrs. Curzon.

Darjiling, April, 1857.

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*Report on the Proceedings of the Officers engaged in the Magnetic Survey of India.—By ROBERT SCHLAGINTWEIT, Esq.*

GENERAL OUTLINE OF THE ROUTE.

I left Rawul Pindi in the Punjáb accompanied by Mr. Monteiro and the draftsman, Eleazar Daniel, on the 18th December, 1856, and travelled by Chukowal and across the Salt Range to Pind Dadan Khan.

I passed through the Salt Range by slow marches, which enabled me to examine its remarkable structure and I made a halt at Keurah, one of the principal Salt Mines, which gave me the opportunity of visiting the Mines and taking a series of observations in them.

Through the kind assistance of C. C. Smyth, Esq. Deputy Collector, at Newrah, I succeeded in making in a short time a pretty complete collection of the different kinds of Salts and Fossils.

From Pind Dadan Khau I continued my journey across the different Doabs of the Punjáb by Shapore and Jhung to Mooltan, where I arrived on the 4th of January, 1857.

I remained there till the 12th January, chiefly occupied with Magnetic and Meteorological observations. Excursions were made to the old bed of the Ravi and to the Chenáb, where I made detailed hydrographical observations.

I proceeded from Mooltan across the Ghara or Sutlej to Bhawlpore and by Ahmedpore to Khanpore.

On this journey I had the opportunity of examining the borders of the desert which advances close to the Sutlej and to the Indus.

Having made from Chanpore an excursion to Mithancote on the right shore of the Indus, and returned to Khanpore, I marched by Naushera and Subgilecote to Sukkur in Upper Sind.

There and in its environs, (at Shikarpore) I remained six days, partly engaged in packing the collections made during my journey in the Punjáb, partly in taking a series of observations.

I left Shikarpore on the 17th February, 1857, and travelled by Sarkhana to Sewan along the right side of the Indus.

After having visited and examined the Hills near Sehwan, the hot springs at Sukki and the Manehar lake, I followed the Hill road by Chorla and Dumach to Kurrachi, which I reached on the 22nd February.

In Kurrachi all my collections (23 boxes) were carefully packed and arrangements made for their being shipped to Bombay.

Departing from Kurrachi on the 1st March I went by Satta and Mugribi across the delta of the Indus and across a portion of the run to Subput in Kutch and on the 14th of March arrived by Khora and Nukatranha at Bhooj, the capital of Kutch.

During my journeys I was accompanied by Mr. Monteiro and the draftsman Eleazar Daniel, (guide in the Quarter Master General's Department, Bombay,) formerly in my brother's establishment.

Mr. Monteiro was sent by me in a boat from Pind Dadan Khan to Mooltan and then to Sukkur and Kurrachi.

Besides making collections of Natural History he took very good hydrographical and meteorological observations with the instruments I had entrusted to him.

Eleazar Daniel, the draftsman, travelling constantly with me, was of great assistance in taking and completing observations, and

I beg to bring to the notice of Government the many and important services which Mr. Monteiro as well as Eleazar Daniel have rendered to my brothers and myself during more than two successive years.

Throughout my journeys during the past cold season I was most obligingly assisted by all the officers in the different stations, so that I was able to carry on my operations without any delay and to collect much valuable information and scattered observations.

I intend to leave Bhooj on the 17th March and to proceed by Rajkote and through Kattewar to Surat and Bombay, which I shall leave by the end of April so as to return to Europe in conformity with communications made to Government when leaving Rawul Pindi.

#### MAGNETIC OBSERVATIONS.

I was provided during my journeys with an universal Magnetometer, by Barrow, with which, however, only the declination and vibration could be ascertained with that accuracy and precision, which these delicate observations require.

My Magnetometer had been carefully compared at Rawul Pindi with the larger instruments of my brothers; but the absolute values though easily ascertained by a repeated comparison and by detailed calculations cannot be given at present with the full details.

The declination and horizontal intensity have been observed at the following localities:—

- |                |              |
|----------------|--------------|
| 1. Shapore.    | 4. Sehwan.   |
| 2. Mooltan.    | 5. Kurrachi. |
| 3. Shikarpore. | 6. Bhooj.    |

Before my departure another set will be made at Bombay for comparison with the Bombay Observatory.

#### METEOROLOGY.

Besides the daily registering of the temperature of the air, (dry and wet bulb) and the pressure of the air, whilst on the march, and a longer series of observations in all places where I halted for some time, particular attention was paid to the following phenomena:—

1. *Dew*.—The quantity of dew which fell at night time was directly and carefully measured in many localities by exposing and



weighing paper boxes filled with grass, sand and wool as described in a former Report. The increase of dew the more I went to the South was very considerable; repeated observations in the same places enabled me to ascertain also the variations of the quantity of dew.

There is very little variation in the daily fall of dew in the Northern parts of the Punjáb, but in localities close to the sea the variations were very great and even remarkable without direct weighing. The greatest variations of the fall of dew I observed near Kurrachi, where in one night scarcely any dew fell, whilst in the next the fall was excessive, although both nights were equally clear and serene.

2.—*Minimum temperature of the air.*

I was particularly interested to see at what time the minimum temperature of the air before sunrise takes place, and to enable me to fix the time of the minimum temperature with certainty, a thermometer was carefully put up and read from 5 to 5 in minutes, the observations being begun long before sunrise.

In the Punjáb and in Upper Sind, during December and January, the minimum temperature took place generally 30 or 35 minutes before sunrise and this temperature was exceedingly well-defined, never lasting more than a few minutes (confer Table A.) In Lower Sind and in Kutch, however, the time of minimum temperature is not so well defined; a uniform temperature lasts nearly from 20 minutes before sunrise up to sunrise, the very minimum being generally just a few minutes before sunrise.

A second depression of the minimum temperature after sunrise was never observed. Table A shows observations on the minimum temperature in the Punjaub, and Table B in Sind and Kutch.

TABLE A.

| JHUNG, 1st January, 1857.      |                    | MOOLTAN, 11th January, 1857.   |                     |
|--------------------------------|--------------------|--------------------------------|---------------------|
| <i>Minutes before Sunrise.</i> | <i>Temperature</i> | <i>Minutes before Sunrise.</i> | <i>Temperature.</i> |
| 60                             | 3·4° cent.         | 55                             | 5·8° cent.          |
| 50                             | 3·4                | 50                             | 5·4                 |

| <i>Minutes before Sunrise.</i> | <i>Temperature.</i> | <i>Minute before Sunrise.</i> | <i>Temperature.</i> |
|--------------------------------|---------------------|-------------------------------|---------------------|
| 45                             | 3·3                 | 45                            | 5·4                 |
| 40                             | 3·2                 | 35                            | 4·7                 |
| 35                             | 2·9                 | 30                            | 4·3                 |
| 30                             | 3·0                 | 20                            | 4·6                 |
| 25                             | 3·0                 | 15                            | 4·6                 |
| 20                             | 3·1                 | 10                            | 4·6                 |
| 15                             | 3·2                 | Sunrise,                      | 4·6                 |
| 10                             | 3·2                 |                               |                     |
| 5                              | 3·2                 |                               |                     |
| Sunrise,                       | 3·2                 |                               |                     |

TABLE B.

## SUBPUT IN KUTCH, 11th March, 1857.

| <i>Minutes before Sunrise.</i> | <i>Temperature.</i> |
|--------------------------------|---------------------|
| 3·5                            | 11·8° cent.         |
| 30                             | 11·8                |
| 25                             | 11·7                |
| 20                             | 11·6                |
| 15                             | 11·2                |
| 10                             | 10·6                |
| 5                              | 9·8                 |
| 3                              | 10·4                |
| Sunrise,                       | 10·7                |

The minimum temperature of the air varies much in the same places, and whilst for instance I once observed in Mooltan a temperature of nearly 0° in the morning, the lowest temperature on the next was 6° and even 7° centigrade. These variations are chiefly produced by clouds, which modify the radiation.

During the months of December and January there were very few days quite cloudless (only three in January).

The weather was very variable between the 20th January and 1st February, during which time some heavy showers fell, which made the temperature of the air throughout the whole day uniformly cool.

During this rainy period the maximum temperature never reached more than  $20^{\circ}$  centigrade and on one day it only rose to  $16.5^{\circ}$  cent. a temperature which is considered very moderate even in Europe. On the 12th February this cold and agreeable weather suddenly ceased, and was followed by a surprising increase of temperature. The maximum temperature generally reached  $30^{\circ}$ , even  $34^{\circ}$  cent. strongly contrasting with the temperature experienced but a week before.

The climate of the Punjáb during the cold season, resembles much more the climate of the North West Provinces than that of any other part of India, but has nevertheless its strongly marked peculiarities.

The following material differences are found when we compare the cold season of the Punjáb with that of the North West Provinces.

1. During the cold season the mean daily temperature of the Punjáb is much lower than in the North West Provinces. The maximum temperature of the Punjáb, as well as the minimum temperature is considerably lower; the extremes of temperature are much greater in the North West Provinces than in the Punjáb.

2. In the Punjáb we find a moderate and very gradual increase of temperature from sunrise up to 12 and 2 o'clock, whilst the increase of temperature in the North West Provinces from sunrise up to 2 o'clock amounts sometimes to  $28^{\circ}$  C.

3.\*—*Temperature of the ground*; the observations on the temperature of the ground from the surface down to a depth of 3 Meters and more were regularly continued with the instruments described in our former Reports.

The following table shows the temperature of the ground in different localities from the surface down to greater depths.

The temperature of the surface contained in this Table is the maximum of the temperature observed on those days.

\* This 3 is consecutive with 2 in page 211.

| Place of Observation. | Date.      | Sur-<br>face. | 0.3<br>Meters<br>above<br>Sur-<br>face. | METERS.               |      |      |      |
|-----------------------|------------|---------------|-----------------------------------------|-----------------------|------|------|------|
|                       |            |               |                                         | Meters below surface. |      |      |      |
|                       |            |               |                                         | 1                     | 2    | 3    | 5    |
| c.                    | c.         | c.            | c.                                      | c.                    | c.   |      |      |
| Chuboural, .....      | 20th Dec., | 27.6          | 12.0                                    | 17.4                  |      |      |      |
| Kewrah, .. .....      | 23rd ,,    | 32.0          | 17.4                                    | 20.6                  | 21.6 |      |      |
| Shapore, .....        | 26th ,,    | 35.2          | 13.5                                    | 20.5                  | 24.2 |      |      |
| Jhung, .....          | 1st Jan.,  | 36.0          | 15.4                                    | 17.7                  | 18.6 |      |      |
| Mooltan, .....        | 4to12th,,  | 36.0          | 14.5                                    | 19.4                  | 23.4 |      | 28.2 |
| Khanpore, .....       | 22nd ,,    |               |                                         | 16.4                  | 21.1 |      |      |
| Naushera, .....       | 24th Feb., | 20.0          | 14.5                                    | 18.9                  | 22.2 | 25.5 |      |
| Sukkur, .....         | 25th ,,    | 37.0          | 18.3                                    | 21.6                  | 21.6 |      |      |
| Kurrachi, .....       | 26th ,,    | 48.0          | 17.4                                    | 25.3                  | 25.5 |      |      |
| Mugribi, .....        | 8th Mar.,  | 50.0          | 17.5                                    | 27.2                  |      |      |      |
| Goon in the Runn,...  | 10th ,,    | 52.0          | 27.5                                    | 26.5                  | 26.8 |      |      |
| Subput, .....         | 12th ,,    | 54.0          | 25.0                                    | 24.0                  | 24.1 |      |      |
| Bhooj, .....          | 26th ,,    | 55.0          | 31.4                                    | 28.9                  | 28.2 |      |      |

This Table evidently shows a great increase of the temperature of the ground the more we advance to the South; the increase is especially rapid between Upper and Lower Siud (Sukkur and Kurrachi.)

There seem however to be great irregularities in the temperature of the ground, the increase being not strictly proportional to latitude or to isothermal curves of the air.

The irregularities in the temperature of the ground are chiefly produced by the variations in the quantity of water contained in the ground, and places in which water is found close underneath the surface have a colder temperature of the ground than localities where water can be obtained only at a greater depth.

The depth of wells was therefore constantly registered, and observations were made to ascertain the quantity of water contained in the ground by weighing samples of earths of different depths as soon as they were taken out. These samples, after being carefully dried, were weighed again and thus the amount of moisture could be calculated.

Jungles also tend to cool the temperature of the ground, and I think, that, when we have the opportunity of comparing the temperature of the ground with depths of wells, with jungles, &c. many striking facts will be found to prove that irregularities of the tem-

perature of the ground are chiefly caused by jungles (in cooling it,) or dry soils (in heating it.) The temperature of the surface of the ground in the Punjáb was never found to reach 40° it is therefore considerably lower than in central India and the North-Western Provinces, where I had often found 45° and even 50° Cent. as the max. temperature of the surface.

Coinciding with the lower temperature of the ground is the fact that in the Punjáb a thermometer with blackened bulb rises (put on black wool,) but very little when exposed to the sun's rays, whilst I saw it rising in Sind to 77°, in Leh in Ladak, elevation 11,800f., it rose on the 8th July to 96° Cent. 8 degrees more than the boiling point of water at this height.

#### HYDROGRAPHICAL OBSERVATIONS.

Careful observations were made for ascertaining the discharge of rivers, their temperature, the form and height of their banks, etc. Observations of the breadth were made by long base lines and triangulations.

In order to make accurate observations on the depth and velocity an anchor was used, which I carried with me for the purpose.

The discharge was measured for the following rivers:—

Jhelum at Pind Dadan Khan, Jhelum near Shapore, Chenáb near Jhuug, Ravi at Pasi Shah, Chenáb at Mooltan, Sutlej or Ghara at Bhawlpore, Indus at Sukkur, Indus at Tatta and the different branches between Tatta and Sukput.

In all these rivers a series of observations was made to ascertain the mean velocity directly.

Large (bamboo) sticks, weighed at one extremity with a bag containing sand or stones, whilst a bladder was fastened to the upper end to prevent their sinking, were floated vertically.

The temperature of the Punjáb rivers was surprisingly cold. The banks of the Punjáb rivers are exceedingly low, if compared with those of the rivers in Hindostan proper, the Ganges, Jumna, Nerbudda, Tonse, &c.

I was enabled to collect, whilst travelling along the shores of the Indus, many interesting data on the inundations of the Indus in 1856.

## GEOLOGY.

The greater part of the plains of the Punjáb is filled with clay, which generally abounds with shells, not only on its surface but also at greater depths.

The thickness of the clay is very different in different localities, it very often is found to be only 6 feet deep, and under it sand is found resembling the sand of rivers. In other localities it is more than 20 feet thick with a layer of sand only a few feet deep, under which clay is met with again.

No shells are to be found in the sand, but as already mentioned, they abound in the clay.

I especially endeavoured during my journeys in the Punjáb to collect shells from the surface and greater depths, samples of sand, of sands of rivers, &c.

I had an opportunity of obtaining numerous and well preserved specimens of fossil shells in Sukkur and Rori in Upper Sind, and made, assisted by the draftsman, Eleazar, a large collection of shells and petrified wood near Sehwan and in the hills on my route down to Kurrachi.

I hope that these collections combined with the observations, taken on the spot will render it possible to ascertain with accuracy the age of the formation, but it would be premature to venture an opinion before a decided examination has been made.

There are several hot springs in this range of hills, and I had the opportunity of visiting those of Sukki near Sehwan and of Mugger Pir near Kurrachi.

In both localities the quantity of water which issues, is pretty considerable, and is extensively used by the natives for medical purposes.

The temperature of the springs at Sukki which take their origin three miles west of Sukki is  $41\cdot2^{\circ}$  Cent., that of Mugger Pir, close to the "Alligator Tank," is exactly the same  $41\cdot2^{\circ}$  Cent.

*Bhooj, in Kutch, 16th March, 1857.*

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*Description of a new Indian Pigeon, akin to the 'Stock Dove' of Europe; with notices of other COLUMBINÆ.—By EDWARD BLYTH.*

In no other group of birds is the difficulty of discriminating between *species* and *permanent varieties*, whatever latitude may be allowed under either denomination, so great and so constantly recurring as in sundry genera of Pigeons. And yet each race, however slightly distinguished from certain other races, is remarkably true to its particular distinctive characters, wheresoever it be found; and it remains to shew that any gradations or transitions occur from one to another, which might not be readily accounted for by intermixture, where such cognate races meet. The numerous permanent races (considered by the Prince of Canino and others as *species*) affined to *TURTUR RISOIUS*, or to *T. AURITUS*, afford ample exemplification; and we are unaware that any of these have been known to interbreed one with another. Moreover, so far as has been observed, it would seem that the voice or *coo* differs appreciably in each race, just as the notes of other proximate but distinct species of birds do, in general, to a notable extent—as familiarly exemplified by those of the British *PHYLLOSCOPUS TROCHILUS* and *PHRUFUS*, and of many others that might be cited.

In Europe, three kinds of wild Pigeon are familiarly known, in addition to the wild Turtle Dove (*Columba turtur*, L.) They are the common 'Ring-dove,' Cushat, or *Ramier* (*C. palumbus*, L.), the 'Stock-dove' or *Columbin* (*C. œnas*, L.), and the 'Rock-dove,' 'Rockier,' or *Biset* (*C. livia*, Latham): the first two of which are foresters, habitually perching and roosting upon trees; and the third is chiefly an inhabitant of sea-cliffs and never alights on a tree. The first builds a platform nest which is supported by the lighter branches of trees; the second builds in the holes of trees (old pollard 'stocks' especially), and not unfrequently in Rabbit-burrows; and the third resorts to the cavities and deep recesses of precipitous rocks, and especially the caverns of sea-cliffs, where it nidificates in large societies. Each is the type of a generic or sub-generic group (*i. e.* a named division) according to the Prince of Canino; and each has its immediate representative or counterpart in India.

1. **PALUMBUS.** The 'Cushats.' In the W. Himalaya, a bird of this group is common, which differs so little from the European race that the two would probably blend, were they to inhabit together. The only distinctions consist in the neck-patch, which is large and almost pure white in the European Cushat, being much contracted and of a buff-colour in that of Asia; while the primaries also of the latter are more narrowly margined externally with white. Upon these slight distinctions, the Prince of Canino designates the oriental race *P. CASIOTIS*, and notes it from Chinese Tartary. He also remarks that the Cushats of Algeria have the white neck-patch more extended than in the European race; and distinguishes another and better-characterized race, from N. W. Africa, by the name *P. EXCELSUS*.

The only other true Cushats known are from this country, *viz.* *P. PULCHRICOLLIS*, (Hodgson), from the E. Himalaya; and *P. ELPHINSTONEI*, (Sykes), from the Nilgiris and Malabar Ghâts,—of which latter the *P. TORRINGTONII* (*Carpophaga Torringtonii*, Kelaart,) can scarcely be considered more than a variety,\* and was first indicated as such in *J. A. S.* XX, 178. Nevertheless, according to Mr. Edgar L. Layard, the late H. E. Strickland "at once pronounced it to be distinct" from *P. ELPHINSTONEI*. All will agree in admitting *P. TORQUATUS*, *P. PULCHRICOLLIS*, and *P. ELPHINSTONEI* as good 'species;' probably also *P. EXCELSUS*: but most systematists would prefer retaining *casiotis* and *Torringtonii* as 'permanent races' or 'varieties' of *P. TORQUATUS* and *P. ELPHINSTONEI* respectively. It will be observed that this is a mountain type as India; being wholly unknown in the plains, save *P. ELPHINSTONEI* rarely on the elevated table-land of the Dukhun, and perhaps the *CASIOTIS* may prove to be a winter visitant in the Punjab, occurring probably in large flocks.

There are two other fine Indian Wood Pigeons of the same *Columbine* type (as distinguished from the *Carpophagine* series of Fruit Pigeons); each of them being recognised as the type of a separate subdivision by the Prince of Canino. They are the *DENDROTHERON HODGSONII*, (Vigors), which is peculiar to the Himalayan forests,—and the *ALSOCOMUS PUNICEUS*, Tickell, of Orissa

\* *Comptes Rendus*, tom. XLIII, 837.



central India, and also Ceylon, though seemingly more common in Arakan and especially the island of Ramri. These are mentioned merely, that it might not appear that they had been overlooked.

2. PALUMBENA, Bonap., founded on *Col. ænas*, L. (*P. columbella*, Bouap.), the British 'Stock Dove;' to which the Prince has since added *P. EVERSMANNI*, from western and central Asia: very like *P. ÆNAS*, but distinctly smaller, with black bill and yellow tip (*dertrum*),—the colouring of the bill having doubtless changed in drying, as will be shewn presently. This should be the *Col. ænas* apud Meyendorff, from Bokhára; described to have the croup of a very pale grey, with all the feathers white at base, in which it accords with our Indian species; and it is not unlikely to prove the very same, migrating according to season. The true *P. ÆNAS* probably co-exists with it in W. Asia; and the European bird is known to be extensively diffused over N. Africa.

*P. EVERSMANNI* (?), Bonap. (If new, *P. ænicapilla*, nobis.) Smaller than *P. ÆNAS*, with wings and tail each 1 in. shorter; the difference in the length of tail being very conspicuous. Colouring much the same; but the croup and fore-part of the wings underneath are of a *whitish-grey* (not pure white) in the Indian bird, instead of being uniformly dark-coloured with the rest, as in the European 'Stock Dove.' The same vinaceous tint (whence the name *ænas*) prevails on the fore-neck and breast of both species; but in the Indian it appears also on the crown, which in the other is pure dark ashy. The wings are similarly marked, except that in our presumed new species there is less black upon the winglet, and the great alar feathers (including the tertiaries) are much less dark in colour. Length of closed wing  $8\frac{1}{2}$  in.; and of tail 4 in. only.

Among some descriptions of birds sent for identification about ten years ago by the late Major Boys, of the Bengal Cavalry, we find one of this Indian 'Stock Dove.' He gives the length of a fresh-killed male as  $11\frac{1}{2}$  in., extent of wings 24 in., and weight 7 oz, 4 dr. Mr. Selby states that *P. ÆNAS* "measures about 14 inches, and in extent of wing nearly 26 in." "The beak," remarks Dr. D. Scott of Hansi, who has favored us with the specimen here described, "is of a yellowish colour, and as if translucent; but this appearance is only visible in the fresh bird, as it had disappeared when

the specimen became dry.\* The legs also had a distinctly yellowish tinge, instead of the red of the common Blue Pigeon; but this also soon disappeared." Major Boys describes the bill and cere as grey, the skin round the eye yellow; iris buff; and legs flesh-pink,—those of our common blue Pigeon being of a deep pinkish-red.

Of the habits of the race, Major Boys merely remarks, that—"These birds fly in flocks and *affect trees!*" When at Cawnpore, last year in May, I observed every evening a large flock of blue Pigeons to collect and roost upon some high trees within cantonments, and therefore not to be fired at; and having never observed the common Blue Pigeon of this country to roost upon trees, I was led to suspect that the birds in question were of a race of 'Stock-doves,' probably different in species from the European; a conjecture which seemed to be verified by the discovery of the bird now under consideration: but I am assured, upon good authority, that the *COLUMBA INTERMEDIA*, Strickland, does commonly roost upon trees, in which habit it would seem to differ remarkably from its very near affine the *C. LIVIA* of Europe and N. Africa.

Of the Indian 'Stock Pigeon,' Dr. Scott remarks—"Though I have been at Hansi nearly five years, I have never seen these Pigeons before; but others have seen them, and have assured me of their occurrence as a distinct race, different from our common Blue Pigeon which breeds in wells. Early in March there were hundreds of them about here; but they soon disappeared. They feed in the fields morning and evening, and roost in the day (and I suppose the night also) in trees, generally in the common *bábul* tree, called here the *keeker*. The natives distinguish them by the name *kummer kulla* or *kula*; the last word being the name of a colour.† To Europeans they are also here known as the 'Hill Pigeon;'

\* In the dry specimen, the bill is black with yellow *dertrum*, as in the Prince of Canino's *P. EVERSMAINI*!

† In the chapter devoted to the rearing of Pigeons in the *Ayin Akbári*, a number of breeds or races are enumerated, concluding with the *Komeree* and the *Gowlah* (Gladwin's translation.) These names refer to the tame Collared Turtle-dove and to the common 'Blue Pigeon' of the country (or *C. INTERMEDIA*) respectively. The latter, indeed, is stated to be "a wild Pigeon, of which, if a few are taken, they are speedily joined by a thousand others of their kind."

though whether they came from the hills I cannot say." These Pigeons have hitherto been observed only in the N. W. of India.

3. COLUMBA, L. (as restricted to the 'Rockier' group of the major continent). Of this type, the Prince of Canino recognises several nearly affined races, some of which differ more or less in habit, as well as in the details of colouring. From certain of these races, all the numerous varieties of domestic Pigeons have undoubtedly descended.

The most unlike the rest is the fine Snow Pigeon of the Himaláya (C. LEUCONOTA, Vigors), which is confined to great elevations near the snow, and assuredly does not appear to have given origin to any domestic variety.

The European Rock Pigeon (C. LIVIA, Latham), according to the Prince of Canino, is found identically the same in Europe, Egypt, the whole Barbary coast, and thence on to Senegal and the Gold coast.\* It is said to abound in the islands of Madeira and Teneriffe. Northward, it is common in the Hebrides, and in the Orkney, Shetland, and Faroe Isles; but in Scandinavia is altogether confined to the island of Rønnesön, on the S. W. coast of Norway, where it breeds in great numbers.† According to Temminck, Japanese specimens do not differ in any respect. It also abounds along the rocky shores of the Mediterranean and Ægean (Italy, Sicily, Malta, Greece, &c.), and those of the Euxine and Caspian; evincing everywhere a decided and remarkable predilection for the crevices and especially the deep caverns and recesses of sea-cliffs, even where the entrance is close over the water at the height of the tide; it penetrates further into such recesses than any sea-bird is known to do. It also feeds more on the tops of plants than the domestic races do habitually;‡ and small *Helices* are commonly found in its craw. Though rarely, if ever, inhabiting inland, unless somewhat domesticated, sundry old-established dove-cots have been stocked with it in various parts of Britain, where the race is maintained

\* *Comptes Rendus*, tom. XXXIX, 1107.

† Nilsson, as quoted by Major Lloyd, 'Scandinavian Adventures,' II, 336.

‡ The British Cuckoo is a great devourer of turnip-tops, as remarked by Gilbert White.

pure ; and, as thus observed, it shews no disposition to associate with the domestic breeds in neighbouring dove-cots, although considered to be the parent race from which the latter are mainly derived. Even when eggs taken from the inland colonies referred to have been hatched, and the young brought up by domestic Pigeons, these Rockiers have been known to quit their foster-parents, as soon as they could fly strongly, to rejoin their immediate relatives and progenitors. Another characteristic of the race is, that they like to breed in extensive societies ; so that the large colonies of them soon absorb any stray birds even from a great distance.

In England, there is likewise a race of wild or semi-wild blue Pigeons, which maintains itself distinct, and (though numerous in individuals) continues as true to its distinctive colouring and all other characters as does the genuine Rockier, of which it is regarded as a variety. These birds frequent inland cliffs and large buildings ; being also extensively reared in dove-cots to meet the demand for Pigeon-matches. They have invariably a speckled wing, each covert being marked with a black spot on each of its webs, in addition to the black bars of typical LIVIA. The scapularies also are thus marked ; and the back indistinctly. The croup is pure white, as in ordinary LIVIA : and the race is chiefly remarkable for the *permanency* of its particular markings, and for commonly inhabiting much more inland than the true *Biset*.\*

Another such race in Italy (a degree, perhaps, more different,) is indicated by the Prince of Canino by the name C. TUBRICOLA, and it has also been received from Persia. The croup being of “ a

\* The same spotting of the wing is common among the Indian domestic Pigeons derived immediately from C. INTERMEDIA, and otherwise not differing from the pure wild race of the latter : but I know of no analogous wild or semi-wild race in this country, which presents this particular colouring as a constant distinction. Individuals or pairs so marked are here common among the tame flocks ; with other varieties of colouring, as black, buff, pure white, pied, &c., and without variation in other characters or tendency to assume the peculiarities of the various ‘fancy breeds.’ These last manifest no tendency ever to return to wildness ; their *domestication* being too complete : but tame Pigeons of some kind are said to have gone wild in N. America, a few pairs of them breeding along the highlands of the Hudson ; and whether these ‘feral’ birds tend to assume an uniform and typical coloration, we have not learned.

pale blue-grey,"—whitish-grey (?), as in the Indian 'Stock-dove,'—"never pure white."

Another, again, is termed by him *C. RUPESTRIS*, from the mountainous and rocky parts of Songaria and Dauria (or Dauria),—adopted from Pallas, but the particular distinguishing characters not specified.

*C. SCHIMPERI*, also, "which covers with its innumerable flocks the more desert plains of Abyssinia. It is stouter and more albescent than the common *C. LIVIA*."

Likewise *C. GYMNOCYCLUS*, Gray, from Senegal. "*Obscurior: orbitis nudis: rostro valdè robustiore.*"

Lastly, *C. INTERMEDIA*, Strickland, of India.\* The common 'Blue Pigeon' of this country, which only differs from *C. LIVIA* by having the croup uniformly coloured with the back, as in the European 'Stock-dove,' and by a somewhat deeper and more uniform shade of ash-colour. Yet the purely wild birds continue true to this colouring, and no variation will be seen in the largest flocks of them, where unmixed with domestic Pigeons; but they most readily mingle with the latter, and scarcely require encouragement to fall into domestic habits. In the vicinity of Calcutta, the pure wild race can hardly be obtained, though domestic Pigeons in every ordinary flock (not of "fancy birds") which are undistinguishable from the wild, in company with others varying more or less in colouring from the type: but even at Benâres, we remarked a great assemblage of these birds, nestling in the innumerable nooks about the famous mosque of Aurungzebe, and sought in vain for any variation of colouring among them, and especially for the white croup of true *C. LIVIA*. Col. Sykes refers this bird to *C. ÆNAS*, and remarks that it is "the most common bird in the Dukhun, congregating in flocks of scores, and a constant inhabitant of every old dilapidated building." He saw "the same species on board ship on the voyage to England, brought from China:" and the Rev. J. Mason notes the occurrence of what he considers to be the same bird, wild in Burma. In Ceylon, according to Mr. Edgar L. Layard, "this species is extremely local, being confined to two places, 'Pigeon Island' off

\* *Comptes Rendus*, tom. XLIII, 838.

Trincomali, and a rock of the Southern coast near Barberrya.\* From these it makes incursions into the interior, and I have heard," he adds, "of specimens being shot on the great central road, about fifty miles from Trincomali." Dr. Jerdon remarks that "it abounds all over India, and is occasionally found in the more open spaces of jungles, especially in rocky districts, and in the neighbourhood of water-falls,—but more generally in the open country, inhabiting walls of villages, pagodas, wells, and any large buildings, and breeding chiefly in old walls." Major Tickell, again, notices it as "exceedingly common in Chota Nagpur, breeding in all the steep lofty rocks of that country." Lastly, Capt. Hutton states that "it is found in Afghánistán, where, as in many parts of India, it builds in wells and ruined buildings; the *Kazeezes*, or Artesian wells of Afghánistán, are sometimes crowded with them. They occur also in the Deyra Doon, and are known as the common Blue Pigeon. At Māsuri, I have seen them only in the cultivated fields, low down on the sides of hills, in warm situations." Length 13 in. by 23 in. in breadth; and *C. LIVIA* is described as measuring  $13\frac{1}{2}$  in. by 22 in. : though it is doubtful if there be any real difference.

Upon other authority, we have been assured that the common Blue Pigeon of Afghánistán has the white rump of the European *LIVIA*. It is probably identical with the *Kemáon* bird next to be described; and both with the *C. RUPESTRIS* of the Prince of Canino.

The late Major Boys, a most experienced collector of Indian birds, whose description of the Indian 'Stock Pigeon' we have just verified, also distinguished a "Blue Rock Pigeon" which he procured at Háwulbágh in *Kemáon*. "This Pigeon," he remarks, "differs considerably from the common Blue Pigeon; particularly in its weight and size. It is in every respect much lighter in plumage. Length of a male  $12\frac{3}{4}$  in., by 25 in.; weight 7 oz. 8 dr. Bill black, the cere grey; iris red; legs pink. Top of head, chin, and sides of face, ashy-grey. Back of neck and upper part of breast glazed metallic green. Bottom of neck metallic purple blending into ashy light grey on the belly. Flanks and vent light grey: wing-coverts and upper part of the back of the same colour. *Middle of back white*. Upper tail-coverts dark ashy-grey. Quills

\* Resorting thus, it would seem, to sea-cliffs wherever the latter are available.

grey,—the shafts black,—darker near their tips. Second quill longest : outer webs darker than the inner. Some of the larger wing-coverts, those covering the *tectrices* [tertiaries ?], together with the 6 or 7 last tertiary feathers, bear a patch of greyish-black, which when the wing is extended forms two indistinct and somewhat curved bands. Tail dark grey at base, *broadly tipped with black*, and having between these two colours *a broad stripe of white* (wanting in the common *C. INTERMEDIA*) Inferior coverts white, blending with grey towards the anterior margin of the wing. Length of tail 5 in. The quills (when the wings are closed) reaching to its tip. The exterior tail-feathers are pure white from their bases on the external web, finished off at tip with black ; the inner webs being grey at base, as obtaining in the intermediary feathers.”

Any collector who has the opportunity should endeavour to verify this particular race, the *habitat* of which would seem to be intermediate to that of the ‘Snow Pigeon’ (*C. LEUCONOTA*) and that of the ‘Common Blue’ of the plains of India : the white rump alone would readily distinguish it from the latter.

*Note on the Green Pigeons of Ceylon.* The *Columba pompadoura*, Gmelin, founded on pls. XIX and XX of Brown’s ‘Illustrations of Zoology’ (1776), has long been sought to be verified ; and at length, it would appear, successfully by the Prince of Canino, in a small species, as originally described, of the size of *C. olax*, Temminck.\* Consequently, the *TRERON MALABARICA* var. *pompadoura* of Mr. Layard’s catalogue is a distinct bird, which may bear the specific name *FLAVOGULARIS*, nobis. It is very like *TR. MALABARICA*, Jerdon, being of the same size as that species, with an equal development of the maronne colour upon the mantle of the male ; but is readily distinguished by its yellowish-green forehead, pure yellow throat, and by having no buff patch on the breast of the male ; it is also further remarkable, that whilst the male of *TR. MALABARICA* has the usual deep cinnamon-coloured lower tail-coverts, that of *TR. FLAVOGULARIS* has them green with broad whitish tips as in the female, and as in both sexes of *TR. CHLOROPTERA* of the Nicobars. *TR. POMPADOURA* is a much smaller species, with the quantity of maronne colour on the mantle of the male greatly reduced, and

\* *Comptes Rendus*, tom. XXXIX, 875.

cinnamon-coloured lower tail-coverts, as usual in the males of this genus. Following the Prince of Canino's classification, the following species of TRERONINÆ inhabit the island.

1. CROCOPUS CHLORIGASTER (Blyth).
2. OSMOTRERON BICINCTA, (Jerdon),
3.        "        FLAVOGULARIS, Blyth.
4.        "        POMPADOURA, (Gmelin).

The first and second being common to Ceylon and the mainland of India; and the third and fourth peculiar to the island, so far as known at present.—E. B.

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Notes on Jumeera Pât, in Sirgooja.—By Capt. R. T. LEIGH, Senior Assistant to the Commissioner of Chota Nagpore.

Jumeera Pât is situated in Sirgooja, about nine miles within the boundary line of that province and the district of Chota Nagpore. It is about 100 miles nearly due west from the station of Chota Nagpore, and lies between 23° 15' and 23° 40' N. Lat. and 4° and 4° 30' W. Long. from Calcutta. Sherghatty is situated about 100 miles to the N. E., and Mirzapore about 160 miles to the N. W. To the north is Palamow, and to the south Oodeypoor.

Jumeera is the name of a small village and the word "pât" means a "plain," or, "table-land."

The road from Chota Nagpore is good as far as Joormoo, which is about eleven miles from Jumeera Pât. In some few places it is rather difficult for wheeled-conveyances, the banks of some of the nullahs being very steep. Such parts might be made quite practicable for carts, in the dry season, when the quantity of water in the nullahs is very small. In the rainy season these streams rise considerably and are not passable by carts. About a mile beyond Joormoo the first ghaut occurs, the ascent of which for a short distance (rather less than quarter of a mile perhaps) is very steep, and quite impracticable for wheeled-carriages. After reaching the top of this ghaut, the road is more or less hilly until within a short distance of the village of Korndah. A large tree on the left hand

side of the road, ascending the Joormoo ghaut, marks the boundary of Sirgooja and Chota Nagpore. Korndah is situated at the entrance of a beautiful and well-cultivated valley, and at the foot of hills. This is a very pretty spot, and the view of the Koosmee valley from the hills above is very fine. A stream of good, clear water flows close by the village, which is about seven miles from Jumeera. The road from Korndah to Jumeera winds through hills, the ascents and descents of which are not very steep, although not practicable for carts. There is a good deal of tree and bush jungle on the road from Joormoo to Jumeera, and the country appears to be cultivated only in occasional small patches. With the exception of Korndah, there are only two or three small hamlets on the road from Joormoo.

A person can travel in a palkee from Joormoo to Jumeera, and by reversing the palkee when ascending the very steep parts of the road, little trouble or inconvenience is experienced.

On reaching the village of Jumeera, the bungalow which has been built for the Junior Assistant Commissioner in charge of the Korndah Sub-division, is seen on high ground about one mile and a half in advance. A slight ascent brings us to the house, and we now have evidently reached the apex, no higher point of land being visible in any direction. Here is a fine and extensive table-land, free from jungle, with the exception of some low scrubs on the more sheltered slopes. With the exception of two topes of "Saikwa" trees, and a few mangoe and peepul which grow near the village of Serandag (about half mile from the bungalow) the "pât" is remarkably bare of trees of any kind.

This spot is 3,200 feet above the level of the sea. I am unable to speak as to the extent of the table-land, but I may safely say, from what I have seen, that it must stretch to many miles. About 300 yards to the south of the bungalow we come to the brow of the hill, from which a beautiful view of the Koosnee valley is obtained, beyond which are the hills of Kooreea and Sirgooja. On the north of the bungalows a spur of the hill runs out to the extent of about one and half miles in length and quarter of a mile (or rather less perhaps) in breadth, sloping down on three sides by a slight descent to a fertile and extensive valley. This spur appeared to me to be

the most eligible site for the sepoy's lines and amlahs' houses, which were accordingly built there.

The soil on the spot on which the bungalow is situated, to the depth of about two or three feet, is a rich black mould, below which is red gravel. In endeavouring to sink a well, which we tried in three places, this gravel appeared to increase in hardness and become more difficult to dig the lower the well was sunk, the colour of the gravel also became of a deeper red. After digging to the depth of about thirty-five or forty feet we came to rock which obliged us to discontinue the work, as the men employed did not understand blasting; no water was obtained. The soil generally, except where the bungalow is situated, is a red, light earth. From the appearance of the slopes of the hill, which are very rocky, as also from the result of our endeavours to sink a well, I should say that the hill on which the house is situated must be one mass of rock beneath.

For water we were dependent on springs, which issue from the sides and at the foot of the hill, it is of good quality, and the springs did not fail during the hot weather, the only drawback being the distance which the people were obliged to go to fetch it, the nearest spring being about half mile from the house. In the rainy season the flow of water from these springs was of course considerably increased, and fresh ones also burst forth. A "bund" had been constructed in the gorge between two hills during the time my predecessor (Mr. A. R. Thompson, C. S.) was in charge of the sub-division, but it had been partially destroyed in the rainy season of 1855, the rush of water from the hills in the rains being at times great, I doubt if a "bund" would stand; unless strongly and scientifically constructed, which would be an expensive work. The greatest convenience, if feasible, would be a couple of wells, one near the house, and the other near the lines.

With regard to climate, I annex a register of the thermometer, the accuracy of which may be depended on, as I noted it daily. In the hot season, as soon as the sun set, the air became cool and pleasant, and the nights were always cool—natives sleeping in the verandah of the house, at night, used warm coverings, even in the hot season. I had neither punkahs nor tatties during the time I was there, and I found that by keeping the doors shut and the

room a little darkened the heat during the day was not very oppressive. The thermometer in the house did not, I think, range higher than 84° or 85°. A strong N. W. and W. wind prevails during the hot season. The rains set in at the end of May, with thunder-storms from the N. W. after which the prevailing wind was from the S. and S. W. It very seldom blows from the E. After the rains had set in there was very little variation in the thermometer from that noted in the beginning of June; and until I left, in the middle of August, I never experienced that "mugginess" which is usual in the plains at times during the rainy season. Not having had a rain-guage, I am unable to speak as to the quantity of water which fell, but I think that, although the rain was at times very heavy, yet it was not so heavy or continuous as at some of the stations in the Himalayas. Perhaps the few trees on the "pât" may account for many of the clouds passing over without discharging their contents. At times there was a good deal of mist.

I enjoyed good health during the time I was there, and the sepoy and office people, who had been with me from the commencement of our residence there, were generally speaking healthy. Some cases of fever occurred, but as the sepoy's lines and the amlahs' houses were only barely finished when the rains commenced, they were of course damp, and to this may be attributed some of the cases of fever. Had the houses been dry, and had the people been able to obtain a regular supply of good food, I think that there would have been less sickness. It was, however, very difficult to procure supplies of good rice, doll, ghee, &c., as the Buniahs, who live in the villages below, have a great dislike to coming up to the "pât" during the rains, and my efforts to establish a bazaar failed. The natives of the adjacent villages appear to be a very poor race, occupied in cultivating their land, from which they raise a coarse kind of rice ("gorah dhan") and "goondlee" (millet), &c. It was with difficulty that they were induced to come and labour in building the lines.

From the experience I have had during a residence of five months (from the end of March until the middle of August 1856) at Jumeera Pât, I should be inclined to pronounce favourably of the climate. There is almost always a fine breeze blowing there, and in

the cold and hot weather a very high wind from the N. W. and W.

The route by which I marched from Chota Nagpore is about 116 miles, there is another and more direct road viâ Lohardugga and Kotam (about 100 miles); but there is a very steep ghaut near Kotam, and the road is in many places very hilly, and passes through a good deal of jungle.

The face of the hill to the south of the bungalows, is covered with bush jungle, there are few trees of any size. The valley at the foot of this hill appears to be quite free from jungle, partially cultivated, and containing a few topes of mangoe trees. Having had occasion to go three or four marches into Sirgooja, in a S. W. direction, I observed that we descended two or three ghauts, but made no ascents. The country is very beautiful, from the intermixture of extensive and fertile valleys and well wooded hills. Game of all descriptions, large and small, abounds.

Chota Nagpore, 13th Oct. 1856.

Register of Thermometer, at *Jumeera Pât*, placed in an open verandah to the North.

Month,	1856.	Before Sunrise.	At 2 P. M.	April.	Before Sunrise.	At 2 P. M.	May.	Before Sunrise.	At 2 P. M.	June.	Before Sunrise.	At 2 P. M.	
March,	26	62	75	1	74	84	1	70	81	1	70	78	Rain.
	27	62	80	2	74	86	2	72	86	2	70	79	Do.
	28	62	79	3	73	87	3	74	90	3	70	79	Do.
	29	68	82	4	76	86	4	73	81	4	71	77	Rain
	30	70	83	5	72	82	5	72	86	5	72	79	Rain
	31	72	83	6	70	84	6	74	88	6	71	79	Do.
				7	74	87	7	74	88	7	72	78	Do.
				8	74	89	8	76	90	8	71	75	Do.
				9	77	91	9	78	90	9	71	75	
				10	78	92	10	78	92	10	71	75	
				11	74	90	11	80	92	11	71	75	
				12	74	92	12	80	94	12	71	75	
				13	76	90	13	78	94	13	71	75	
				14	69	86	14	78	91	14	71	75	
				15	70	86	15	80	92	15	71	75	
				16	71	87	16	73	90	16	71	75	
				17	71	88	17	73	86	17	71	75	
				18	74	91	18	71	86	18	71	75	
				19	76	92	19	75	88	19	71	75	
				20	76	93	20	76	90	20	71	75	
				21	76	90	21	74	89	21	71	75	
				22	74	91	22	76	85	22	71	75	
				23	76	93	23	72	80	23	71	75	
				24	76	94	24	70	82	24	71	75	
				25	76	92	25	70	78	25	71	75	
				26	78	86	26	70	82	26	71	75	
				27	70	82	27	70	82	27	71	75	
				28	68	80	28	72	84	28	71	75	
				29	70	76	29	74	84	29	71	75	
				30	70	74	30	74	82	30	71	75	
				31	68	74	31	68	74	31	71	75	Do. Heavy rain.

After this date I did not note the thermometer, but up to the time I left (18th August) there was little variation from that marked in the beginning of this month, if any thing, it became a little colder.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,

FOR MAY, 1857.

At a Monthly General Meeting of the Asiatic Society held on the 6th instant,

The Hon'ble Sir James Colvile, Kt., President, in the Chair.

Presentations were received—

1. From J. Robbins, Master of the *Sumroo*, a piece of limestone from Fort Alexandria, Sebastopol, being the material of which the original Malakhoff, Constantine, Alexandria and other Forts were constructed. Also a Russian bar shot and a shell weighing 118 lbs. from the same place.

2. From Mr. H. Tucker, Commissioner of Benares, a copy of the map of the village in which the ruins of Sarnath are situated.

The following gentlemen, duly proposed and seconded at the last meeting, were balloted for and declared elected: Dr. W. C. B. Eatwell, Rajah Prásunonauth Rái Bahádur, of Degaputtie, Rajshye.

The election of the Venerable Archdeacon Pratt as a member of the Council in the place of Dr. Walker, was confirmed.

The Council submitted a report by the Committee of Natural History on the state of the Museum, together with the minutes of the Council in reference to it. The Council recommended that the suggestions contained in the report be adopted, and proposed the following resolution.

“That the Council be empowered to enter into a communication with the Government on the subject of the foundation at Calcutta of an Imperial Museum, to which the whole of the Society's collections may be transferred, provided the locality,

the general arrangement, and management be declared on a reference to the Society at large to be perfectly satisfactory to its members."

This resolution having been put to the meeting by the Chairman, considerable discussion ensued, in the course of which Major Thuillier suggested that the words "except the Library" should be inserted after the word "collections." This suggestion was adopted. Subsequently Captain C. B. Young moved as an amendment, seconded by Baboo Rájendra Lál Mittra—

"That the consideration of the resolution be adjourned to the next meeting."

This amendment was put to the vote and lost, and the resolution, as amended by Major Thuillier, was then carried.

The Council announced that they had reconstituted a Committee of Meteorology and Physical Science, consisting of the following members :—

Major R. Strachey, the Venerable Archdeacon Pratt, Major H. L. Thuillier, Baboo Radhanauth Sikdar, Dr. Von Liebig, and H. Piddington, Esq.

Recorded.

With reference to the Stacy collection of coins, the Council reported that the subscriptions promised amounted to Rs. 2,880, of which Rs. 1,735 had already been realized, and that Captain Wroughton having agreed to reduce the price of the collection from Rs. 5,000 to Rs. 4,000, an additional sum of Rs. 1,120 only was required to complete the purchase. They therefore requested authority to advance for this purpose a sum not exceeding Rs. 1,200, so soon as all the promised subscriptions have been realized.

Granted.

Communications were received—

1. From Mr. Secretary Young, forwarding with reference to the correspondence which took place in 1853 and 1854 between the Government of Bengal and the Society regarding the preservation of the ruins at Gonr and Purrooah from further decay and destruction, copy of a letter on the subject from the Board of Revenue, from which it appears that the Government of Bengal had made an offer to purchase such of the ruins as were really worth preserving, but that the terms demanded by the zemindars

were so unreasonable that the Lieutenant-Governor was precluded from acceding to them.

2. From Mr. B. H. Hodgson, enclosing a paper for the Journal, being descriptions of two new species of mammalia, viz., a *Lagomys* and a *Mustela*.

3. From Mr. Freeling, submitting a note on the collection of coins in the Society's Cabinet.

The note was read by the Secretary as follows :—

“ The coins in the Society's Cabinet were in a state of some disorder.

“ My first effort was to class them, throwing all of one series together, and then to separate the worthless from the good. This I have done, and although the space in the drawers forbade any precise arrangement even had the generality of the coins merited such trouble, they are now in trays (which are to be converted into boxes), roughly classed, and the name of the series to which they belong legibly written on them. I have also when discoverable, added the names of the donor on the wrapper of the coins themselves.

“ In the *wooden* trays are displayed the Guptas, the gold and silver Roman, and the silver Greek, Bactrian and Arsacidan. There are also two trays of copper Roman arranged previously, with which I did not meddle. There is also a separate drawer with a few gems, seals, curiosities, &c., with some presentation medals which scarcely hold a place among the coins themselves.

“ With the contents of the cabinet I was much disappointed, though this may be, and probably is, owing to the loss sustained, when all the more intrinsically valuable specimens were stolen in 1844. I was also surprised to find how various the series are, the Roman and the Norwegian being far the largest and most perfect of any. There are several batches of Indian copper and lead, which would be interesting were the locality known; but at present being entirely unidentified and most illegible, they are utterly worthless. This point should especially be borne in mind in laying by all future presentations: when a collection is sent, such memo. of the collector's residence is of little importance, but when a whole trove, or a single coin is forwarded, information of where it

was found, may render very valuable what is otherwise mere old copper.

“Of Indian coins the Bactrians should have the first place, but for such an extensive and interesting series it is the worst represented of any; in silver there is only a drachma of Demetrius, a hemidrachma of Zoilus, 2 of Hormœus, 1 of Dionysius and 5 of Menander. None of them are in particularly good preservation, though the Dionysius is I fancy very rare.* The copper are as poor as the silver, most being of the commonest types, and in poor preservation. The aid of friends in the Punjab, or possessing any duplicates in their collection is much needed to render the series at least what the Asiatic Society ought to possess.

“Of Indo-Scythic gold there is but one, of Overki as A. A. XIV. 2, and not by any means a fine specimen; the copper too are inferior, and a good set of these would be a great addition to the collection.

“Of Arsacidan there is one large silver and 11 of the ordinary smaller size. It would be very desirable to get these named and assigned by any one conversant with the series.

“There are 5 Greek tetradrachms, 4 of Ptolemy and one of some other monarch; there are also 2 silver of Alexander the Great, but Mr. Thomas doubts their being genuine, apparently with too good reason.

“It is in Roman coins the Society is peculiarly rich, and a reference to the earliest numbers of the Journal would probably enable any numismatist easily to re-arrange and identify the specimens there described. I had no time to do it myself, so have merely put all these together. Some appear very fine specimens, and there are 13 silver besides 8 beautiful gold, these last presented by General Cullen from Travancore.

“Of the Hindoo coins, the Guptas claim the first attention, and here again though the number is considerable, the types are few and, of the real Gupta series, possessing little interest. There are a few good and interesting copper ones presented by Captain Hayes

* Not having Cunningham's plates by me just now, and being pushed for time, I am unable to refer to the figures as I could have wished.

of Lucknow, and in gold there are 5, one of Chandra II, as in Ar. Antiq. XVIII. figure 4, by Captain Hayes, one of Samudra fig. 6, one uncertain, another apparently the 4th variety of Kumara at page 501 of Thomas's paper in the Journal, Vol. 24, and one of Kumara A. A. fig. 12. This last, however, is of most doubtful appearance, and I should say it was a forgery. There are also 3 later imitations. Besides these there is a batch presented by the Government, N. W. P. in February, 1856, from Goordaspore, consisting of 2 specimens of Kumara with the common, Mahendra device, and 11 of Chandra II. as in Captain Hayes' coin. Of these none are very fine, and the type of Chandra is so very common, that I should strongly recommend 7 of the 11 being sold to natives, who purchase these Guptas eagerly, and about 100 Rs. would, probably be realized; so many specimens of one sort are of no value, in an antiquarian point of view, and being so common, I doubt an exchange of these with other collectors being practicable, I have therefore left this lot in a separate paper, with the four I would keep divided off from those of inferior value.

“ There are, however, several others allied to this set, and of much interest, being those presented by Mr. F. L. Beaufort, and found in Jessore. They were figured in plate XII. of Vol. 23 of the Journal. Of fig. 10 there are 4 and one somewhat different, of fig. 11 but one, and 15 of fig. 12, of these last some might most advantageously be exchanged for other coins needed by the Society, and as they are not a common type, Major Abbott's cabinet being the only place elsewhere that I have seen them, I doubt not many collectors would be glad to do so.”

Of Boodhist coins there are several, some of much interest, Captain Hayes having contributed many of the cock and bull series named and classed, also some of the cast square, elephant, and tulsī type, of which there is also another batch. The most interesting of the Boodhist, however, are the silver punched coins, of which, common as they are (the collection itself boasting 4 different lots), there are some very good, with new symbols and devices on them, and in fine order. Many of these might furnish fresh illustrations for a paper on Boodhist emblems, and although from absence of any trace of their *local* the number might advantageously be reduced, great care should be taken in discriminating those to be rejected.

There are two papers of the coins figured plate XX. of Vol. XI. of the Journal as Ceylou coins, in very fine order, and I doubt not a good set might be made out of them, on their legends being carefully read; these were given by Mr. C. B. Skinner, in June, 1851. In a separate lot are a quantity of coins having a close apparent affinity to these, which I should also have considered as Cingalese, but for a small second paper-full which are said to have been found near Madras.

Mr. T. Oldham, in February, 1856, presented a quantity of large and small Arracan coins, very curious and quite unlike any other Indian coinage. Several strings contain the currency of Chiua, Japan, &c., some of the latter being exceedingly grotesque.

The Mahometau pieces may be divided into those of the Pathans of Delhi, the Pathans of Bengal, the Moguls, and the coins of Ghuzni, Khwarism, &c.

Of these last mentioned, there are a fair number, including two gold of Alaeddin Mohamed Shah; they have chiefly been classed by Mr. Thomas, who has not only named them, but in many instances written the legend on the wrapper. I would urge that these be carefully transcribed into a book, as the character being a difficult one, if any of these papers be lost, it may be long ere they are replaced, whereas many might be able to assign the right coin to the right legend, though not sufficiently versed in the series to themselves decipher the whole of the somewhat indistinct margins. The same remark applies to the coins of the Sassanian dynasty and Arab Governors of which the Society has several, and which are even more *caviare* to the general multitude than the early *cufic* abovementioned.

In Delhi Pathans there is little to be proud of, though two broad pieces of Mahomed ben Sam, a new type of Mahomed Shah and a silver Rizia are all valuable, especially the last. Of this series I have made a concise catalogue with reference to "Thomas's Pathan Sovereigns," which will help any one anxious to increase the Society's possessions in this line.

In Bengal Pathans the cabinet is rich, but as I hope to furnish the journal with a separate paper on this topic, I forbear saying more of these at present.

The Moguls are very poor indeed, there being nothing of any value, save 3 Noorjehans, one certainly very fine and perfect. The rest are either Akhbars, Jehungirs or Shah Jehans, all of most common type, and, strange to say, without even a single square Rupee among them. Most of these came from Benares, from Mr. Gubbins, in February, 1853.

It is very curious how large a collection there is of Foreign continental coins, mostly Norwegian, some of very old date and probably of much interest to those valuing that series. There is a shilling also of Elizabeth of England, dated 1591, and a crown of Charles I. Mr. Speirs has besides given several old broad pieces and dollars, very curious and doubtless of value; one of James the Sixth of Scotland, in very fine order, dated 1582, and two others of 1570 and 1602, respectively; the others are of Maria Theresa, 1773, Frederick Duke of Brunswick, 1627, Hilary Third of Spain and India, 1637, Charles II. of do. 1668, Maximilian reigning Duke "Bulloniensis," 1677, Frederick of Prussia, 1785, Albert and Elizabeth reigning Duke and Duchess of Brabant, 1619, Sigismund III. of Poland, 1628, and Ferdinand II. of Hamburg. I have been thus particular, in enumerating these because it is strange to find such a collection of heavy medieval pieces in Calcutta, where they could hardly have been looked for.

In conclusion, I would urge that all friends to the Society, among whom must of course be specially included all who themselves feel any interest in Indian numismatics, should be requested to aid in every mode in their power, so that the coin collection may be placed in that rank which would so well befit a society whose Journal is the depository of the life long labours of "James Prinsep."

4. From Baboo Radhananth Sikdar, an abstract of the Meteorological Register kept at the Office of the Surveyor General for the months of January and February last.

5. From Lieutenant H. Raverty, a paper on the Seeposh Kaffirs. The Librarian and the Zoological Curator submitted their reports.

Report of Curator, Zoological Department.

The following specimens have been presented to the Society since my last Report.

1. Dr. D. Scott, Hansi. The following specimens.

VULPES LEUCOPUS, nobis, *J. A. S.* XXIII, 729. Skin of a fine male, which literally verifies the statement of Mountstuart Elphinstone, quoted *loc. cit.*; appearing "as if it had been wading up to the belly in ink:" the name *leucopus*, therefore, is unfortunate, as being applicable (it would seem) to one sex only. The skin now sent is perfect; and though wanting the skull and limb-bones, has been set up as a stuffed specimen. Dr. Scott remarks of this species, in *epistolá*, that "they differ extremely in colouring; some look all over of a sandy-red colour, while others have black bellies and are very light above. The skin sent is an excellent specimen, one reason for this being, that it was from an inhabitant of the open fields. Those that live among sand-hills get so full of *burrs* (or thorny seeds) that they look miserable, and scratch off a good deal of their fur." For further information concerning this little Desert Fox, *vide* Vol. XXV, 443.

FELIS ORNATA, Gray, *vide J. A. S.* XXV, 441. A fine skin, but wanting that of the lower jaw and tail-tip, and therefore unfit for setting up: also two skins of domestic Cats, sent as supposed hybrids of this species, but which are characteristic representatives of the streaked Indian type of domestic Cat, described in the note to Vol. XXV, p. 442. Having since communicated on this subject with Dr. Scott, he subsequently wrote word, that—"With regard to hybrid Cats, I can offer no proof; but I know that a year or two ago a common domestic Cat had kittens under my haystack, and one of them was precisely like the *F. ORNATA*, and without any white,—whilst my gardener had a tom which might easily have passed for an *ORNATA*, only that he had a white collar and belly, and from living less in the sun was less rusty in colour. There are plenty of tame Cats here with spots like those of the *ORNATA*; and I will try to procure and send some skins of them."

PTEROCLES ARENARIUS; a skeleton, kindly sent at my request.

PALUMBENA GENICAPILLA, nobis, *n. s.* Indian 'Stock Pigeon;' a skin described in a separate paper.*

* Dr. Scott has likewise favored me with a description of two living *Ghor-khurs* from the Bikánir desert; the male of which is most remarkable for having a well developed cross-stripe over the withers, besides faint stripes on the limbs,—not a trace of either being visible in the female. They are believed, he says, to be between eighteen months and two years old.

"The male stands, as near as I could measure, 45 inches high (11¼ hands) at the shoulder; and the female about 2 in. less (but she was not measured).

2. Lt Brownlow, Engineers, Lahore. Skull of *URSUS ISABELLINUS*, from Kashmir; and a few bird-skins, also from Kashmir, including *MEROPS APIASTER* and *NUCIFRAGA MULTIMACULATA*. Likewise some specimens of a reversed *pupiform* *BULIMUS* new to the museum, and distinct from *B. KUNAWARENSIS* of Hutton.

3. Capt. Robert Tytler, 38th N. I., Delhi. Five skins of birds, including the *HIRUNDO CONCOLOR*, Sykes, Small Crested Lark—*GALERIDA BOYSII*, and *SYLVIA JERDONI* (if correctly distinguished from the European *S. ORPHEA*).

“The upper part of the body is of a buff-fawn colour, with white belly and legs, and a white streak from the flanks up the side.

“Both have a dark stripe along the back, looking like a continuation of the mane, except that the hair of it is short and smooth: the colour of this stripe is dark brown or nearly black, and it extends all along the back and down part of the tail. The male has a most distinctly marked stripe of the same colour across the withers; but the female has not. The male also has distinctly marked fawn stripes on both fore and hind legs; but I could not discern a trace of them in the female. The black tuft at the end of the tail reaches to about the hocks. The cross-stripe over the withers of the male was about an inch broad, and extended about a foot down the shoulders on each side. Moreover there was a female *Ghor-khur* here some years ago, and she was said to have the cross-stripe on withers. This I have been told by more than one person who saw her.”

Of several *Ghor-khurs* which I have seen and minutely observed in Europe, one only (in the late Surrey Zoological Gardens) had an incipient cross-stripe, extending only about an inch on one side (as near as I can remember), and less than half an inch on the other; and I have sought in vain for traces of the cross-stripes on the limbs: these occur in some domestic Donkeys, even adults, but not in all, however young; and are particularly distinct in some of the small Asses of this country, being of a black colour (not fawn), moderately broad and placed somewhat distantly apart.

It would seem that the deserts of Southern Arabia, the Thebaid, Nubia, and Abyssinia (both on the plains and mountains), are the true indigenous home of *EQUUS ASINUS* (the “Wild Ass” of Chesney); that the more northern parts of Arabia, with Syria and Mesopotamia, are tenanted by the recently described *E. HEMIPPUS* (or “Wild Horse” of Chesney); while the deserts of W. India, S. Afghânistán, Persia, and thence onward to the Aral and beyond, are inhabited by the *Ghor-khur*, the distinctions of which (if any) from the *E. HEMIONUS* of middle Asia remain to be positively determined.

“From what I have heard,” remarks Dr. Scott, “the *Ghor-khur* is still plentiful enough in the Bikhanor desert; but they are wild and difficult of approach.

4. Bábu Rajendra Mállika. Body of a Civet (*VIVERRA ZIBETHA*) now preparing as a skeleton. Ditto of a male Hog Deer in its seasonal spotted coat,—sent as a hybrid between *C. AXIS* and *C. PORCINUS*. Ditto of a fine adult male of an African Monkey, the *CERCOPITHECUS CYNOSURUS*; and ditto of a Cassowary, which has been prepared as a skeleton.

5. C. Darwin, Esq. F. R. S. &c. &c. Pair of Red Deer horns (*C. ELAPHUS*),—frontlet with horns, and three odd horns, of *C. DAMA*,—and pair of horns of *C. VIRGINIANUS*; with specimens of various British *Crustacea*.

6. Major Tickell, late of Moulmein. Also some specimens of Crabs from that vicinity.

7. Dr. J. R. Withecombe. A beautiful S. African Snake, the *ELAPS HYGÆI*, forwarded from Cape town.

May 1st, 1857.

E. BLYTH.

A year or two ago the Buháwulpur Nawáb in a month's shooting only got seven. Their flesh is eaten as venison."

Since the foregoing observations were transcribed, the following notice has appeared in a contemporary Journal, the 'India Sporting Review,' *n. s.* No. VIII. no doubt elicited by some articles contributed to that periodical with the express design of educing such information from competent authorities.

It appears that *Ghor-khurs* are still tolerably numerous in the *Pát* or desert between Asni and the hills, west of the Indus, above Mithur-kote. "They are to be found wandering about this desert pretty well throughout the year; but in the early summer, when the grass and the water in the pools have dried up from the hot winds (which are here terrific), the greater number, if not all, of the *Ghor-khurs* migrate to the hills for grass and water. Some are probably to be found in the hills throughout the year, for among them are sandy plains of greater or less extent. The foaling season is in June, July, and August; when the Beluchis ride down and catch numbers of foals, finding a ready sale in the cantonments for them, as they are taken down on speculation to Hindustán. They also shoot great numbers of full grown ones for food, the ground in places in the desert being very favorable for a 'drive,' or stalking." The author performed the difficult feat, on an Arab horse, of riding down and spearing one of these animals, a female; and he remarks that—"They stand about 12 hands high, are of a fawn (*Isabelle*) colour, with white on the belly, chest, and neck. They have a dark chesnut mane, [and black] dorsal stripe, tuft to the tail, and tips to the ears. Some are very beautifully striped on the legs; many are mottled. I have seen one or two of a very dark colour. They have not generally the stripe on the shoulder, though I think I have seen some with it slightly marked. Their head very large; ears very long: the eye handsome; and coat very fine." This variation in colouring and especially the stripes on the legs do not appear to have been observed in the *Kyangs* of Tibet.

LIBRARY.

The library has received the following accessions during the month of April last.

Presented.

An introduction to the use of the Mouth-Blowpipe, by Dr. Theodore Scheerer. Translated and compiled by H. F. Blanford, 1856, 12mo.—BY MR. BLANFORD.

Selections from the Records of the Government of India, No. XXI. containing Revenue Reports of the Ganges Canal, for the year 1855-56. Irrigation in Egypt.—BY THE GOVT. OF INDIA.

Memoirs of the Geological Survey of India, Vol. I. Part I.—BY THE GOVT. OF BENGAL.

Selections from the Records of the Bengal Government, No. XXV. Reports on the Bengal Teak Plantations, Productive capacities of the Shan countries, Reports on Serajgunge, on Vaccination, on the Tea Plant in Sylhet, on the Botanical Gardens, Calcutta, and on the Patna Opium Agency, 2 copies.—BY THE SAME.

Ditto from the Records of Government, N. W. Provinces, Part XXV. 1857.—BY THE AGRA GOVT.

Ditto from the Records of the Bombay Government, No. XXXVIII. Correspondence relating to the tenure of the possessions in the Deccan held by His Highness Jyajee Rao Sindia under the Treaty of Surie Aujungaum.—BY THE GOVT. OF BOMBAY.

Ditto from ditto, No. XL. Papers regarding the Revenue Settlement effected in the districts of Omerkote and Thun : and on the Condition and System of arrangement of Thurr and Pankur districts.—BY THE SAME.

Annual Report (34th) of the Parental Academic Institution and Doveton College, 1857.—BY MR. SMITH.

The Annals of Indian Administration, edited by M. Townsend, Part I. and II.—*Serampore*, 1857.—BY THE GOVT. OF INDIA.

Sjaïr kén Tamboehan, door Dr. J. J. de Hollander, *Lieden*, 1856, *pamphlet*.—BY THE AUTHOR.

Mémoires de la Société Impériale des Sciences Naturelles de Cherbourg, 3 vols. 8vo. *Paris*, 1855.—BY THE SOCIETY.

Zeitschrift der Deutschen morgenländischen Gesellschaft, Band XI. Heft I. *Liepzig*, 1857, 2 copies.—BY THE GERMAN ORIENTAL SOCIETY.

Indische Alterthumskunde. 8vo. von C. Lassen. Dritten Bandes, Helft. I. *Liepzig*, 1857.—BY THE AUTHOR.

Journal of the Statistical Society of London, Vol. XX. Part I. March. 1857.—BY THE SOCIETY.

First Report of the Committee on Beneficent Institutions, 1857.—BY THE SAME.

Journal Asiatique, Nos. 32 and 33, November and December, 1856, and January, 1857.—BY THE ASIATIC SOCIETY OF PARIS.

Proceedings of the Royal Geographical Society of London, Nos. 6 and 7.—BY THE SOCIETY.

Journal of the Agricultural and Horticultural Society of India, Vol. IX. Part III. *Calcutta*.—BY THE SOCIETY.

Discours de M. Garcin de Tassy, pamphlet.—BY THE AUTHOR.

Proceedings of the Royal Society, Vol. 8, Nos. 23 and 24.—BY THE SOCIETY.

Journal of the American Oriental Society, No. 2.—BY THE EDITOR.

The Calcutta Christian Observer for April, 1857.—BY THE EDITOR.

The Oriental Christian Spectator for March, 1857.—BY THE EDITORS.

The Oriental Baptist for April, 1857.—BY THE EDITOR.

The Upadeshak for April.—BY THE EDITOR.

Exchanged.

The Athenæum for January and February, 1857.

The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, Nos. 84 and 85.

Purchased.

Astronomical Observations made at the Royal Observatory at Greenwich in the years of 1817 to 1825. 8 vols. folio.

Observations Astronomiques faites a l'Observatoire Royal de Paris, Tome I. 1825, *Paris*.

Histoire des Insectes, Lépidoptères. Tome I. V. VI. VII. and VIII. 8vo. *Paris*, with Planches.

Visit to Remarkable Places: by William Howitt, 8vo.

Die Lieder des Hafis. Persisch mit dem commentare des Sudi herausgegeben von Hermann Brockhaus, Band, 1 Viertes Heft, *Liepzig*, 1857.

The Literary Gazette, Nos. 2087 to 2095.

Comptes Rendus, Nos. 1 to 7, 1857.

Journal des Savants for January and February, 1857.

Index to ditto for 1856.

Revue et Magazin de Zoologie, No. 12 for 1856 and No. 1 for 1857.

Annales des Sciences Naturelles, No. 5. 1857.

The Annals and Magazine of Natural History, Nos. 110 and 111, for 1857.

The Quarterly Review, No. 201, January, 1857.

Revue des deux Mondes, (bi-monthly) January 15th to 1st March, 1857.

The American Journal of Sciences and Arts, No. 67.

GOUR DAS BYSA'CK.

Librarian & Assistant Secretary.

1st May, 1857.

Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of March, 1857.

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

Feet.

Height of the Cistern of the Standard Barometer above the Sea level, 18.11.

Daily Means, &c. of the Observations and of the Hygrometrical elements dependent thereon.

Date.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer during the day.			Mean Dry Bulb Thermometer.	Range of the Temperature during the day.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	o	o	o	o
1	<i>Sunday.</i>							
2	.854	29.939	29.778	0.161	80.3	90.0	73.9	16.1
3	.808	.879	.734	.145	80.0	89.2	73.0	16.2
4	.844	.925	.780	.145	80.6	89.8	74.1	15.4
5	.863	.942	.817	.125	80.2	89.0	73.6	15.4
6	.858	.942	.803	.139	80.3	88.8	73.6	15.2
7	.868	.980	.752	.228	77.3	88.2	67.8	20.4
8	<i>Sunday.</i>							
9	.969	30.080	.916	.164	74.3	83.2	68.7	14.5
10	.937	.061	.881	.180	68.5	70.4	66.8	3.6
11	.914	29.972	.829	.143	71.6	80.4	64.8	15.6
12	.941	30.023	.889	.134	72.9	81.9	65.0	16.9
13	.980	.064	.935	.129	76.5	85.8	67.4	18.4
14	.950	.031	.888	.143	78.6	88.6	70.7	17.9
15	<i>Sunday.</i>							
16	.885	.973	.810	.163	80.6	90.6	72.3	18.3
17	.878	.957	.807	.150	81.2	92.4	71.8	20.6
18	.845	.928	.777	.151	80.8	90.8	72.4	18.4
19	.812	.882	.748	.134	80.8	92.6	69.8	22.8
20	.775	.859	.695	.164	82.1	93.2	74.1	19.1
21	.771	.836	.713	.123	83.0	94.2	74.7	19.5
22	<i>Sunday.</i>							
23	.733	.809	.646	.163	83.8	95.1	75.6	19.5
24	.719	.807	.659	.148	84.4	96.6	74.8	21.8
25	.741	.816	.676	.140	84.7	96.2	75.4	20.8
26	.786	.872	.731	.141	85.8	98.6	75.2	23.4
27	.784	.879	.689	.190	86.7	100.2	76.4	23.8
28	.675	.759	.583	.176	86.5	98.8	76.8	22.0
29	<i>Sunday.</i>							
30	.731	.815	.681	.134	85.7	95.4	78.8	16.6
31	.802	.881	.757	.124	84.9	94.8	78.2	16.6

The Mean height of the Barometer, as likewise the Mean Dry and Wet Bulb Thermometers are derived, from the twenty-four hourly observations made, during the day.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of March, 1857.*

Daily Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon. (Continued.)

Date.	Mean Wet Bulb Ther- mometer.	Dry Bulb above Wet.	Computed Dew Point.	Dry Bulb above Dew Point.	Mean Elastic force of Vapour.	Mean Weight of Vapour in a cubic foot of air.	Additional Weight of Va- pour required for com- plete saturation.	Mean degree of Humi- dity, complete satura- tion being unity.
	o	o	o	o	Inches.	T. gr.	T. gr.	
1	<i>Sunday.</i>							
2	73.0	7.3	69.3	11.0	0.711	7.66	3.25	0.70
3	72.8	7.2	69.2	10.8	.708	.64	.17	.71
4	74.3	6.3	71.1	9.5	.753	8.11	2.90	.74
5	74.6	5.6	71.8	8.4	.771	.31	.57	.76
6	74.9	5.4	72.2	8.1	.781	.41	.50	.77
7	72.3	5.0	69.8	7.5	.722	7.82	.16	.78
8	<i>Sunday.</i>							
9	67.8	6.5	64.5	9.8	.607	6.62	2.50	.73
10	65.1	3.4	63.4	5.1	.586	.64	1.19	.84
11	66.9	4.7	64.5	7.1	.607	.67	.73	.79
12	67.2	5.7	64.3	8.6	.603	.60	2.13	.76
13	69.5	7.0	66.0	10.5	.638	.92	.83	.71
14	71.0	7.6	67.2	11.4	.664	7.19	3.19	.69
15	<i>Sunday.</i>							
16	72.0	8.6	67.7	12.9	.674	.27	.74	.66
17	70.8	10.4	65.6	15.6	.630	6.78	4.43	.61
18	69.6	11.2	64.0	16.8	.597	.42	.65	.58
19	70.3	10.5	65.0	15.8	.617	.65	.42	.60
20	72.0	10.1	66.9	15.2	.657	7.06	.45	.61
21	75.1	7.9	71.1	11.9	.753	8.08	3.74	.68
22	<i>Sunday.</i>							
23	75.8	8.0	71.8	12.0	.771	.25	.85	.68
24	75.4	9.0	70.9	13.5	.748	.00	4.31	.65
25	77.3	7.4	73.6	11.1	.817	.73	3.69	.70
26	76.2	9.6	71.4	14.4	.761	.12	4.71	.63
27	76.5	10.2	71.4	15.3	.761	.10	5.08	.62
28	76.3	10.2	71.2	15.3	.756	.05	.05	.62
29	<i>Sunday.</i>							
30	77.0	8.7	72.6	13.1	.790	.43	4.37	.66
31	77.0	7.9	73.0	11.9	.801	.55	3.94	.69

All the Hygrometrical elements are computed by the Greenwich Constants.

Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of March, 1857.

Hourly Means, &c. of the Observations and of the Hygrometrical elements dependent thereon.

Hour.	Mean Height of the Barometer at 32° Fahr.	Range of the Barometer for each hour during the month.			Mean Dry Bulb Thermometer.	Range of the Temperature for each hour during the month.		
		Max.	Min.	Diff.		Max.	Min.	Diff.
	Inches.	Inches.	Inches.	Inches.	°	°	°	°
Mid-night.	29.836	29.977	29.690	0.287	76.1	80.8	67.0	13.8
1	.830	.966	.686	.280	75.3	80.8	66.7	14.1
2	.819	.950	.682	.268	74.8	80.2	66.1	14.1
3	.816	.938	.671	.267	74.2	80.2	65.5	14.7
4	.808	.935	.665	.270	73.7	80.2	65.3	14.9
5	.819	.940	.683	.257	73.3	79.6	65.0	14.6
6	.838	.963	.694	.269	72.9	78.8	61.8	14.0
7	.863	30.005	.714	.291	73.1	78.8	65.0	13.8
8	.895	.064	.750	.310	76.0	81.7	67.7	14.0
9	.913	.061	.758	.303	79.1	84.1	67.2	16.9
10	.917	.080	.759	.321	81.7	88.0	67.0	21.0
11	.903	.066	.738	.328	84.9	92.9	67.7	25.2
Noon.	.876	.035	.720	.315	87.2	96.3	67.8	28.5
1	.842	29.997	.675	.322	89.0	98.2	67.9	30.3
2	.812	.969	.652	.317	89.9	99.2	69.8	29.4
3	.788	.951	.617	.334	90.5	100.0	69.9	30.1
4	.774	.942	.598	.344	90.2	100.2	70.0	30.2
5	.772	.945	.584	.361	88.4	98.1	69.8	28.6
6	.781	.951	.583	.368	84.8	92.6	67.8	24.8
7	.797	.958	.601	.357	82.3	90.2	68.6	21.6
8	.821	.980	.632	.348	80.3	87.1	68.2	18.9
9	.836	.988	.652	.336	78.9	84.2	68.6	15.6
10	.849	.992	.659	.333	77.3	82.8	67.4	15.4
11	.844	.980	.666	.314	76.6	81.8	66.8	15.0

The Mean Height of the Barometer, as likewise the Mean Dry and Wet Bulb Thermometers are derived from the observations made at the several hours during the month.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of March, 1857.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements
dependent thereon.—(Continued.)

Hour.	Mean Wet Bulb Thermometer.	Dry Bulb above Wet.	Computed Dew point.	Dry Bulb above Dew point.	Mean elastic force of Vapour.	Mean Weight of Va- pour in a Cubic foot of Air.	Additional weight of vapour required for complete saturation.	Mean degree of hu- midity, complete satu- ration being unity.
	o	o	o	o	Inches.	Troy grs.	Troy grs.	
Mid- night.	72.7	3.4	71.0	5.1	0.751	8.17	1.46	0.85
1	72.2	3.1	70.6	4.7	.741	.07	.33	.86
2	71.9	2.9	70.4	4.4	.736	.04	.22	.87
3	71.4	2.8	70.0	4.2	.727	7.94	.15	.87
4	71.1	2.6	69.8	3.9	.722	.89	.07	.88
5	70.7	2.6	69.4	3.9	.713	.80	.04	.88
6	70.4	2.5	69.1	3.8	.706	.72	.04	.88
7	70.8	2.3	69.6	3.5	.717	.84	0.95	.89
8	72.3	3.7	70.4	5.6	.736	8.00	1.60	.83
9	73.3	5.8	70.4	8.7	.736	7.95	2.58	.76
10	73.7	8.0	69.7	12.0	.720	.74	3.63	.68
11	74.0	10.9	68.5	16.4	.692	.41	5.08	.59
Noon.	73.8	13.4	67.1	20.1	.661	.03	6.34	.53
1	73.7	15.3	66.0	23.0	.638	6.75	7.33	.48
2	73.5	16.4	65.3	24.6	.623	.59	.87	.46
3	73.4	17.1	64.8	25.7	.613	.48	8.24	.44
4	73.3	16.9	64.8	25.4	.613	.50	.09	.45
5	73.0	15.4	65.3	23.1	.623	.61	7.23	.48
6	73.7	11.1	68.1	16.7	.684	7.29	5.17	.59
7	74.1	8.2	70.0	12.3	.727	.81	3.77	.67
8	73.4	6.9	69.9	10.4	.725	.82	.09	.72
9	73.3	5.6	70.5	8.4	.739	8.00	2.47	.76
10	72.8	4.5	70.5	6.8	.739	.02	1.96	.80
11	72.7	3.9	70.7	5.9	.744	.08	.69	.83

All the Hygrometrical elements are computed by the Greenwich constants.

Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of March, 1857.

Solar radiation, Weather, &c.

Date.	Max. Solar radiation.	Rain Gauge 5 feet above Ground.	Prevailing direction of the Wind.	General Aspect of the Sky.
	o	Inches.		
1	Sunday.	..		
2	144.7	..	S.	Cloudless till 3 A. M. cloudy till 9 A. M. cloudless afterwards.
3	136.7	..	S.	Cloudless.
4	139.6	..	S.	Cloudless till 6 A. M. scattered ci till 6 P. M. cloudless afterwards.
5	136.2	..	S. & S. E.	Variable aspect till 3 P. M. cloudless afterwards.
6	135.4	..	S.	Variable aspect till 2 P. M. cloudless afterwards.
7	138.0	0.30	S.	Cloudless till 7 A. M. scatd. ci till 4 P. M. cloudy, with lightning & thunder & rain afterwards.
8	Sunday.	..		
9	129.2	..	N. W. & N. & W.	Cloudy till 10 A. M. scatd. ni & vi afterwards.
10	..	0.14	N. & E.	Scatd. ni & vi till 6 A. M. cloudy afterwards; also rain between 9 A. M. & 1 P. M.
11	131.0	0.52	N. & N. E.	Scatd. ni & vi till 1 P. M. cloudy afterwards, also rain & thunder & lightning between 8 & 11 P. M.
12	134.0	..	W. & N. W.	Cloudless.
13	146.0	..	S. W.	Cloudless till 10 A. M. scatd. ci till 5 P. M. cloudless afterwards.
14	140.0	..	S. & S. W.	Cloudless.
15	Sunday.	..		
16	141.5	..	S. W. & S.	Cloudless.
17	139.0	..	S. W. & S. & W.	Cloudless till 2 P. M. scatd. ci till 6 P. M. cloudless afterwards.
18	135.0	..	S. W. & W.	Cloudless.
19	138.8	..	S. & W. & N. W.	Cloudless.
20	135.0	..	S.	Cloudless.
21	144.0	..	S.	Cloudless.
22	Sunday.	..		
23	138.8	..	S.	Cloudless.
24	145.0	..	S.	Cloudless.
25	136.5	..	S.	Cloudless.
26	154.8	..	S.	Cloudless.
27	143.0	..	S.	Cloudless.
28	139.6	..	S. & S. W.	Cloudless.
29	Sunday.	..		
30	138.0	..	S.	Cloudless.
31	134.0	..	S. & S. W.	Cloudless.

ni Cirri, vi cirro strati, ci cumuli, ci cumulo strati, vi nimbi, —i strati vi cirro cumuli.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of March, 1857.*

MONTHLY RESULTS.

			Inches.
Mean height of the Barometer for the month,	...	...	29.835
Max. height of the Barometer, occurred at 10 A. M. on the 9th,	...	...	30.080
Min. height of the Barometer, occurred at 6 P. M. on the 28th,	...	...	29.583
Extreme Range of the Barometer during the month,	...	...	0.497
—————			
			°
Mean Dry Bulb Thermometer for the month,	...	...	80.5
Max. Temperature, occurred at 4 P. M. on the 27th,	...	...	100.2
Min. Temperature, occurred at 6 A. M. on the 11th,	...	...	64.8
Extreme Range of the Temperature during the month,	...	...	35.4
—————			
			°
Mean Wet Bulb Thermometer for the month,	...	...	72.7
Mean Dry Bulb Thermometer above Mean Wet Bulb Thermometer,	...	...	7.8
Computed Mean Dew Point for the month,	...	...	68.8
Mean Dry Bulb Thermometer above computed Mean Dew Point,	...	...	11.7
			Inches.
Mean Elastic force of vapour for the month,	...	...	0.699
—————			
			Troy grains.
Mean weight of vapour for the month,	...	...	7.52
Additional weight of vapour required for complete saturation,	...	...	3.46
Mean degree of Humidity for the month, complete saturation being unity,	...	...	0.69
—————			
			Inches.
Rained 3 days. Max. fall of rain during 24 hours,	...	...	0.52
Total amount of rain during the month,	...	...	0.96
Prevailing direction of the Wind,	...	...	S. & S. W.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of March, 1857.*

MONTHLY RESULTS.

Table showing the number of days on which at a given hour any particular wind
blew, together with the number of days on which at the same hour,
when any particular wind was blowing it rained.

Date.	N.	Rain on. N. E.	Rain on.	E.	Rain on. S. E.	Rain on. S.	Rain on. S. W.	R in on. W.	Rain on. N. W.	Rain on. Calm.	Rain on.
	No. of days.										
Midnight.	3						18	2	2		
1	3						18	3	2		
2	2						19	3	2		
3	2				1		17	2	3		
4	1				1		17	4	2		1
5	1				1		18	3	2		1
6	3						17	4	1		1
7	3				1		16	4	1		1
8	3				1		13	6	1		1
9	1				1		13	8	1		1
10	1				1		10	11	1		1
11	1	1					11	5	1		4
Noon.		1		1	1		11	4	5		4
1		2		1	1		6	7	6		4
2		1		1			6	9	5		3
3		1		1			9	6	6		3
4		1		1		2	6	8	7		
5		1			2	2	8	6	7		
6		2			2	2	12	4	4	1	2
7		2			2	2	13	2	4	1	3
8	1	1	1		1		14	2	4	1	3
9					3	1	14	2	3	1	3
10		1			3		15	2	2	1	3
11		2			4		14	2	1		2

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta,
in the month of March, 1857.*

On the 21st March, 1857, the Meteorological Observations after ten minutes intervals being taken at the Surveyor General's Office, they indicate the following circumstances:—

	h.	m.		h.	m.
<i>Exact Time of Minimum Barometer,.....</i>	4	20	A. M. and	4	0 P. M.
<i>Ditto Maximum Barometer,</i>	9	30	do. and	11	0 do.
<i>Ditto Minimum Temperature,.....</i>	6	30	do.	{ or half an hour after sunrise.	
<i>Ditto Maximum Temperature,</i>	3	0	P. M.		

On Saturday, the 7th March, 1857. A Western gale sprung up at $\frac{1}{2}$ past 5 P. M. and blew for three quarters of an hour. During the prevalence of the gale there was much thunder and lightning and also a little rain.

